MINISTRY OF AGRICULTURE, TRADE, LANDS, HOUSING AND THE ENVIRONMENT
P.O. Box 272
Brades **Tel: (664)-491-2546/2075**
Montserrat **Fax: (664)-491-9275**
West Indies **E-Mail: malhe@gov.ms**

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26 August 2016 **Ref:** MATLHE 1/1

Dear Sir/Madam,

Re: Tender for the Construction of a Two Bedroom Dwelling in Davy Hill – House No.1.

You are invited to submit a tender for the above captioned project. Included are the tender documents consisting of:

1. Instruction to Tenderers
2. Document Check List
3. Form of Tender
4. Bill of Quantities
5. General Conditions of Contract
6. Anti-Collusion Statement
7. Evaluation Criteria
8. Post Contract Evaluation
9. the schedule of labour rates
10. the schedule of material prices
11. the schedule of construction equipment
12. the list of proposed sub-contractors
13. Specifications
14. Drawings

Please return a complete document of the priced and signed Form of Tender, Bill of Quantities, Completed Document Check List, signed anti-collusion statement and a copy of your **tax compliance certificate (if locally based). These should be placed in an inner envelope and** addressed to **The Chairman, Public Procurement Board, Ministry of Finance and Economic Management, Brades MSR1110, Montserrat. The name of the project should also be written on this inner envelope and should read, "Tender for the Construction of a Two Bedroom Dwelling in Davy Hill – House No.1". The name of the tenderer should also be written on the inner envelope.**
This envelope should be placed into an outer envelope addressed to **The Chairman, Public Procurement Board, Ministry of Finance and Economic Management, Brades, MSR1110, Montserrat. The name of the project should also be written on this outer envelope and should read, "Tender for the Construction of a Two Bedroom Dwelling in Davy Hill – House No.1".** The outer envelope should bear no identification of the tenderer. Tenders are to be received no later than **2:00pmon Wednesday 14th September2016**. Please ensure that no additional marks are placed on the outer envelope.

A site visit will be arranged for **10:00 am on Monday 05th September 2016** at the Davy Hill site. Any queries relating to the tender or works included should be made in writing to the Director, Public Works Department.
Yours sincerely,

……..
Daphne S Cassell
Permanent Secretary, MATLHE

TWO BEDROOM DWELLING
INSTRUCTIONS TO TENDERER

Tender Documents and Instructions

Tenderers will be supplied with the following tender documents:

- Tender Dossier
- Tender Drawings

Invitation Letter/verbal confirmation was done.

Tender Drawings prepared by the Architect; Royal Engineers and Public Works Department, Ministry of Communication, Works and Labour.

Bills of Quantities prepared by the Quantity Surveyor, Public Works Department, Ministry of Communication, Works and Labour.

One copy of the above mentioned tender document will be supplied to all tenderers.Tenderers must comply strictly with the following instructions; failure to do so will result in their tender being rejected.

Documents to be submitted together with the Form of tender:

Instruction to Tenderers
Document Check List
Form of Tender
Bill of Quantities
Tax Compliance
General Conditions of Contract
Signed Anti-Collusion Statement
Evaluation Criteria
Post Contract Evaluation
The schedule of labour rates
The schedule of material prices
The schedule of construction equipment
The list of proposed sub-contractors
Construction programme

This tender is based on the Drawings presented, Specifications, Conditions of contract (JCT SBC/Q 2011) and Bills of Quantities (measured works section), hereinafter is referred to as the Contract Documents.

Scope of the Works

Contract provides for-:

The supply, fabrication and erection of the entire works as noted in the Preliminaries section of the Tender Document.

The proposed works are described in the Drawings, Scope Statements and Bills ofQuantities, which are provided to the tenderers.

Explanation of Documents

If any point/s in the documents issued for the purpose of tendering are not clear, theTenderer is especially asked to telephone the Public Works Department at +664 491 6611 or +664 491 8566 to clarify any Queries on the drawings or in the Bills of Quantities. The Government Architect will provide explanations by the issue of an addendum to confirm answers given, and not less than 7 working days prior to the date fixed for the delivery of tenders, and a copy of such addendum will be dispatched to all parties who have taken sets of the tender documents. Any addendum so issued will be incorporated in the contract documents.

All information given on the drawings or in the contract documents relating to materials encountered, ground-water, sub-surface conditions, natural phenomena, and existing pipes and other structures is from the best source available to the Employer at preparation of tender documents. All such information is furnished only for the information and convenience of tenderers.

Statements to Tenderer

Neither the Employer; Government of Montserrat., nor any of its agents or servants shall be bound by, held liable for any statement made or delivered to any tenderer unless such a statement shall have been confirmed by a circular letter to tenderers issued by the Government Architect.

Tenderer to Investigate Before Tendering

The tenderer will be deemed to have read and examined all the documents and he/she shall satisfy him or herself as to all matters and contingencies which can in any way

influence his or her tender. Any neglect or failure on the part of the tenders to obtain reliable information upon any matters affecting the cost, execution, construction, completion and maintenance of the Works and the Contract shall not relieve the persons whose Tender is accepted from any risks or liabilities for the complete Works, nor will any claim for increase of the Contract be entertained as a result of such negligence.

The tenderers are required to visit and examine the site and its surroundings, and he/she may obtain for him or herself all the information that may be necessary for compiling his or her tender. He/she must examine the tender documents and ascertain the matters on which he/she will be deemed to have satisfied him or herself with all the risks and obligations which the Contract will impose on the Contractor, submission of the tender therefore shall be considered conclusive evidence of such.

The tenderer shall submit his or her tender with the understanding that the tender documents are intended to cover all the work within the scope of the Contract, and that unless expressly excluded, any and all labour and materials not indicated therein, but necessary to complete any part of work, shall be considered as included and shall be furnished.

Any alteration made by a tenderer to the documents issued for the purpose of tendering or omission by him or her to complete fully and return every document as required by this notice to tenderers, unless otherwise instructed by the Government Architect, may preclude consideration of the tender by the Employer. Should any further information be required, it will be supplied on request by the Government Architect.

Bills of quantities

Quantities contained within the Bills of Quantities do not necessarily indicate conclusively the amount or the extent of works to be performed. The tenderer must satisfy himself or herself as to the general accuracy of the quantities given in the bill of quantities and must provide accordingly in the tender rates. If he/she considers that any

quantity may differ materially from the figure given in the bills of quantities, he/she must call attention to the fact in a letter accompanying the tender. The tenderer must not insert additional items in the bills of quantities, but must provide for all his/her obligations under the Contract in the rates and prices entered against the items provided. An all-in rate comprising of labour, material, transportation and plant must be entered against every item in the bills of quantities. If any item is left un-priced it shall be deemed as allowed for elsewhere. The schedules must also be completed if provided in the tender documents.

Currency of Tender

Tenders shall be priced in Eastern Caribbean Dollars. Rates and prices shall be inclusive of applicable taxes. In order to keep the bidding process as fair and simple as possible, please bid as a **duty paid** project.

The tenderer must familiarize himself/herself with the workings of the Customs Department and shall allow for the costs of and shall accept responsibility for preparing and processing the necessary documents involved in the importation of labour and materials, etc. to be incorporated in the Works.

The tenderer must allow for all Wharfage Dues, Package Tax, Importer's Licenses (where applicable), Stamp Duties, taxes and charge that may be required.

Special rules are in force in respect of the importation of plant, scaffolding, tools, equipment and consumable stores that are not incorporated in the Works. The tenderers must allow for the result of licenses, bonds deposits, duties, taxes, stamp duties or any other charges that may be required.

Return of Tenders

Tenders shall be sent to:-

The Chairman
Public Procurement Board
Ministry of Finance and Economic Management
Government Headquarters
Brades
Montserrat

Please return a complete document of the priced and signed Form of Tender, Bill of Quantities, Completed Document Check List, signed anti-collusion statement and a copy of your **tax compliance certificate (if locally based). These should be placed in an inner envelope and** addressed to **The Chairman, Public Procurement Board, Ministry of Finance and Economic Management, Brades MSR1110, Montserrat. The name of the project should also be written on this inner envelope and should read, "Tender for the Construction of a Two Bedroom Dwelling in Davy Hill – House No.1". The name of the tenderer should also be written on the inner envelope.**

This envelope should be placed into an outer envelope addressed to **The Chairman, Public Procurement Board, Ministry of Finance and Economic Management, Brades, MSR1110, Montserrat. The name of the project should also be written on this outer envelope and should read, "Tender for the Construction of a Two Bedroom Dwelling in Davy Hill – House No.1".** The outer envelope should bear no identification of the tenderer. Tenders are to be received no later than **2:00pmon Wednesday 14th September2016**. Please ensure that no additional marks are placed on the outer envelope.

A site visit will be arranged for **10:00 am on Monday 05th September 2016** at the Davy Hill site. Any queries relating to the tender or works included should be made in writing to the Director, Public Works Department.

Information to be completed by the Tenderer

Tenderer shall complete the tender documents so provided. Each Tender must contain the name, residence and place of business of the person or persons making the Tender and must be signed by the Tenderer with his usual signature. Tenders by partnership must furnish the full names of all partners and must be signed with the partnership name by one of the members of the partnership or by an authorized representative followed by the signature and designation of the person signing. Tenders by corporation to be signed with the legal name of the corporation followed by the date and name of the State of incorporation and by the signature and designation of the President, Secretary or other person authorized to bind it in the matter. Satisfactory evidence of the authority of the signer on behalf of the firm shall be furnished.

Responsibility for Tender

The Employer, Government of Montserrat will not be responsible for, or pay for, any expense or loss which may be incurred by the tenderer in the preparation of his tender.

The Tenderer to whom the award is made may be required to furnish, and deliver to the Employer, a written bond of indemnity, of the same form as that in security forms section of the tender document, in the amount of ten percent (10%) of the Contract Price, and with surety thereon acceptable to the Employer. The bond shall be furnished and maintained at the expense of the Contractor. The party to whom the Contract is awarded will be required to execute the Contract and (if required) furnish the Performance Bond duly executed within seven days, not including Sunday or Legal Holiday. Failure to so execute the Contract shall be sufficient reason for the Government Architect to cancel the award without obligation or claim upon the Employer.

Increases / Decreases in Cost of Labour and Materials

- Increases / decreases in the current cost of labour and materials subsequent to the date for closing of Tenders will not result in an adjustment to the Contract Price.
- Basic unit costs of labour and certain materials upon which the Tender is based and upon which day works and variations will be considered shall be listed in the Schedule listed in the preliminary Appendix. These Schedules shall be completed and submitted with the Tender. Failure to submit them may lead to disqualification of the Tender.

Bribery

The offer of a bribe or other inducement to any person with the object of influencing the placing of the Contract will result in instant rejection of the tender concerned.

Time for Commencement

Tenderers are advised that the actual work of this Contract must not be started until a "**Notice to Commence Work**" has been issued by the Government Architect. The Contractor shall, however, commence work no later than the date specified in the above Notification.

Time for Completion

The time for completion for the complete contract is to be determined by the tenderer in the Form of Tender.

Validity of Tender

The tender shall be valid for 90 calendar days from the date fixed for public or private opening of tenders. During this period the tender is irrevocable. The Employer shall notify the successful tenderer (if any) of its acceptance within the period of the tender validity.The Tenderer to whom the award is made will be required to enter into an agreement with the Employer. This agreement will be of the form that is in the Tender Documents, and stated earlier.

Acceptance of Tender

The Employer, Government of Montserrat., does not bind itself to accept the lowest or any tender nor to assign any reason for the rejection of any tender. Tenders may be declared void if the tender sum exceeds the funds available for the works.

Errors in the Tender

Errors discovered in the Contractor's Tender will be dealt with as follows:

The Contractor will be given details of such errors and afforded an opportunity of confirming or withdrawing his offer. If the Contractor withdraws, the tender of the second most advantageous tenderer will be examined, and if necessary this Contractor will be given a similar opportunity.

Ministry of Communications, Works and Labour

Tender Document Checklist

Project Title: ***Tender for the Construction of a Two Bedroom Dwelling at Davy Hill***

Date scheme advertised: ***26th August 2016***

Tender Deadline Date: ***14th September 2016***

Tender Deadline Time: ***2:00pm***

Below are the following documents that should be provided for a contractor's tender to be valid. Bidders are asked to supply and tick off the following information. Failure to provide any of the stated documents will result in the tender being considered non-compliant and rejected.

The below documents should be presented with their bid to ensure that their bid is valid.

Signed Form of Tender (**Including time for completion and notice period**) ☐

Completed Bill of Quantities ☐

Tax Compliance Certificate ☐

Signed Anti-Collusion Statement ☐

Cash Flow Schedule ☐

Construction Programme ☐

Method Statement ☐

Proposed Payment Schedule ☐

Details of Contractor Experience ☐

..... ……

Signed on behalf of Contractor Date

FORM OF TENDER

The Chairperson
Public Procurement Board
Ministry of Finance and Economic Management
Brades
Montserrat

Dear Sir/Madam;

Re: Tender for the Construction of Two Bedroom Dwelling in Davy Hill – House No.1.

I/We the undersigned undertake to construct and complete the above Works in accordance with the General Conditions of Contract, Specifications and Drawings for the sum of:
EC$
……
(words)……
……
……

If my/our tender is accepted, I/We undertake to commence the Works within ____ **days**from the date of receipt by me/us of the official order and complete the works within ____**days** from the date of receipt by me/us of the official order.

I/We understand I/We shall not be reimbursed for any cost that may have been incurred in compiling this tender. I/We confirm this tender shall remain valid for a period of 90 days from the date of submission of this tender.

Name……

Signed……

Name of firm (If Applicable) ……..

Address……..

……

Tel. nr……

Fax nr……

Email Address ……

Date……

APPENDIX TO FORM OF TENDER

Clauses

Amount of Bond or Guarantee (if required):	10 percent of Contract Sum
Amount of Third Party Insurance	Ec $400,000.00
Period for commencement from Notification of Award of Contract	……. Calendar Days **
Time for completion	……. Calendar Days **
Amount of Liquidated Damages	EC$500 per day or part thereof
Period of Maintenance	12 months
Percentage of Retention	5 percent
Limit of Retention Money	5 percent of Contract Sum
Time within which payment to be made after issue of Certificate	14 Calendar Days

** To be filled in by Tenderer

AGREEMENT

between

GOVERNMENT OF MONTSERRAT

and

…….

1. This Agreement is made the …….day of…….**2016** between the **GOVERNMENT OF MONTSERRAT** having its headquarters at Government Headquarters, Brades, Montserrat acting herein and represented by **Mrs. Daphne Cassell,** Permanent Secretary, Ministry of Agriculture, Trade, Housing, Land and Environment (MATHLE) (hereinafter referred to as "**GOM"**) of the one part and …….whose address is …….acting herein and represented by ……..(hereinafter referred to as the "**Contractor"**) of the other part.

   The Employer is desirous that the construction of the Two Bedroom Dwellinghouse be carried out in Davy Hill and has being accepted by the contractor for the sum of …… ……**($.....)** are the amount to carry out the works according to the schedule and other documents which comprised the contract document.

2. This Agreement shall take effect from the…… and subject to prior termination as provided by this agreement shall continue for a period of …….. Days/weeks/months.

3. In this Agreement:

   a) "Agreement" means these General terms and Conditions in Schedule 1 together with the Specification drawings, Signed Form of Tender, Priced Bill of Quantities, Specifications, Contract Drawings, signed and dated Anti-Collusion statement, tender circular, addenda in Schedule 4 and any document incorporated into this agreement by reference;

   b) "**Contractor**" includes the **Contractor**, and his/its employees;

   c) "deliverables" includes specifications, drawings and any component element of the Works;

   d) "Quantity Surveyor" means a duly authorized representative of GOM who is also qualified and trained as a Quantity Surveyor

   e) "Works" means the works to be executed in accordance with this agreement as described in the Specification drawings.

4. The **Contractor** is an independent contractor and shall not be considered in any respect as being an employee of **GOM**.

5. The **Contractor** shall supply its Montserrat Social Security number and verify the accuracy of the number as entered on all documentation connected with this agreement, and shall provide to **GOM** evidence of good standing with and observance of the requirements of the Social Security Board.

6. The representative of **GOM** for the administration of this agreement is the Permanent Secretary, Ministry of Communications and Works (hereinafter referred to as the Administrator). The Administrator shall have final authority for acceptance of the **Contractor's** performance, and if satisfactory shall initiate the process for approval of payment to the **Contractor**. No payment shall be made without such approval.

7. The **Contractor** shall provide the deliverables specified in column 1 of Schedule 2, within the timelines set out in Column 2 of Schedule 2, in return for the fees set out in column 3 of Schedule 2, under the terms and conditions outlined in Schedule 1.

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the date herein first mentioned.

BY

_____

Daphne Cassell
Permanent Secretary, Ministry of
Agriculture, Trade, Housing, Land and
Environment

WITNESS

_____

BY

_____

WITNESS

_____

EVALUATIONOFTENDER

EvaluationCriteria

Thefollowingevaluationcriteriawillbeusedtoevaluatetendersreceivedinresponsetothis Invitationto Tender provided. The Administrative Compliance would be applied before the remaining criteria and is either pass or fail with failure meaning that bids would be deemed Non-compliant.

Tendersmustachieveaminimumscoreof65%tobeconsideredforawardofcontract.

CriteriaDescription	Weight(%)
Administrative Compliance	Pass / Fail
Method Statement / Risk Analysis	Pass / Fail
Programme of Works	Pass / Fail
Financial Compliance	60
Technical Compliance & Tenderer's Experience	40

Tenderersthatfailtomeettheabovequalifyingscorewillberejectedandnotconsideredforawardofcontract.

Administrative Compliance(Pass/Fail)

Tenderers must submit all the documents requested in the tender document. The tender checklist provides a list of requirements which need to be fulfilled. All Tenderers are required to fully complete the Form of Tender including the commencement time and the proposed completion time which are highlighted. In addition Tenderers are required to fully complete the Bill of Quantities provided. A valid Tax Compliance Certificate mustbe submitted with each submission. Tenderers must sign and date the Anti-Collusion statement. In addition details of two (2) previous works of similar nature must be submitted in accordance with the Technical Compliance below. This fulfils The Administrative Compliance which is weighted a pass/fail. Where **all** the above requirements have been fulfilled then the tenderer would advance to the next evaluation criteria. If any of the above mentioned items are not submitted then the tender would be deemed non-compliant and the submission rejected.

Method Statement/Risk Analysis(Pass/Fail)

Tenderers are required to submit a work method statement which should identify a fully detailed outline of the work task or process which should be completed in carrying out the said works. Risk control strategies should also be identified to ensure that all the possible hazards, health, safety and the wellbeing of the workforce is not affected. Tenderers should also submit a risk method statement to show how to eliminate (or reduce as far as possible) the possibility of an

accident occurring where individuals may suffer injury or work related illness, or where property may be damaged. This criterion would be assessed on a pass/fail weighting.

Programme of Works(Pass/Fail)

Tenderers are required to provide an accurate detailed programme of works showing a list of all activities which would be carried out to complete the works including time frames for each activities. The programme should effectively show the start dates, duration of key activities, the total duration for completing the works and hand over date. Programmes with the necessary requirements would be assessed by a pass. And those without the necessary requirements would be assessed by a fail.

Financial Compliance(60%)

Thetenderedpriceisasignificantcomponent and theGovernmentofMontserratwillseektoensurethatthe works are undertaken atthemosteconomicallyadvantageousprice. Nonetheless the Government of Montserrat is not bound toaccept the lowestor anytender.However,thereareotherfactors as listed in the criterion description for evaluationandthesewillbeconsideredproportionately.Thepercentagefor thiscriterionwill becalculated proportionately in comparison tootherpricesubmissionsfromtenderers.

TechnicalCompliance & Experience(40%)

Adherenceto the technicalspecificationisparamount to tenderers achieving success in the evaluation process. Prospective tenderers need to provide details of at least 2 previous contracts completed within the past 10 years of a similar nature to the scope of works of this tender with a value of a minimum $620,000.00 for material and labour and a minimum value of $372,000 for labour only. These details should include but are not limited to the following; the entity or person for which the work was completed, contact information for the entity or person, the value of the works, the location of the works. In addition the prospective tenders can submit award letters for works in lieu of the above mentioned information. Thepercentagefor thiscriterionwill becalculated proportionately in comparison toothersubmissionsfromtenders.

Start Date or Date of Award	Description of Works	Name of Client	Price of Contract	Date Completed

GOVERNMENT OF MONTSERRAT

TENDER SUBMISSION ANTI-COLLUSION CERTIFICATE

I/WE CERTIFY THAT THIS TENDER IS MADE IN GOOD FAITH, AND THAT WE HAVE NOT FIXED OR ADJUSTED THE AMOUNT OF THE TENDER BY OR UNDER OR IN ACCORDANCE WITH ANY AGREEMENT OR ARRANGEMENT WITH ANY OTHER PERSON. I/WE ALSO CERTIFY THAT WE HAVE NOT AND I/WE UNDERTAKE THAT WE WILL NOT BEFORE THE AWARD OF ANY CONTRACT FOR THE WORK:

DISCLOSE THE TENDER PRICE OR ANY OTHER FIGURES OR OTHER INFORMATION IN CONNECTION WITH THE TENDER TO ANY OTHER PARTY (INCLUDING ANY OTHER COMPANY OR PART OF A COMPANY FORMING PART OF A GROUP OF COMPANIES OF WHICH I AM/WE ARE A PART OF) NOR TO ANY SUB-CONTRACTOR (WHETHER NOMINATED OR DOMESTIC) NOR SUPPLIER (WHETHER NOMINATED OR DOMESTIC) OR ANY OTHER PERSON TO WHOM SUCH DISCLOSURE COULD HAVE THE EFFECT OF PREVENTING OR RESTRICTING FULL COMPETITION IN THIS TENDERING EXERCISE

ENTER INTO ANY AGREEMENT OR ARRANGEMENT WITH ANY PERSON THAT THEY SHALL REFRAIN FROM TENDERING, THAT THEY SHALL WITHDRAW ANY TENDER ONCE OFFERED OR VARY THE AMOUNT OF ANY TENDER TO BE SUBMITTED OR OTHERWISE COLLUDE WITH ANY PERSON WITH THE INTENT OF PREVENTING OR RESTRICTING FULL COMPETITION

PAY, GIVE OR OFFER PAY OR GIVE ANY SUM OF MONEY OR OTHER VALUABLE CONSIDERATION DIRECTLY OR INDIRECTLY TO ANY PERSON FOR DOING OR HAVING DONE OR CAUSING OR HAVING CAUSED TO BE DONE IN RELATION TO ANOTHER TENDER OR PROPOSED TENDER FOR THE WORK ANY ACT OR THING OF THE SORT DESCRIBED AT I), II) OR III) ABOVE.

I/WE FURTHER DECLARE THAT I/WE HAVE NO KNOWLEDGE EITHER OF ANY SUM QUOTED OR OF ANY OTHER PARTICULARS OF ANY OTHER TENDER FOR THIS CONTRACT BY ANY OTHER PARTY.

I/WE FURTHER CERTIFY THAT THE PRINCIPLES DESCRIBED ABOVE HAVE BEEN, OR WILL BE, BROUGHT TO THE ATTENTION OF ALL SUB-CONTRACTORS, SUPPLIERS AND ASSOCIATED COMPANIES PROVIDING SERVICES OR MATERIALS CONNECTED WITH THE TENDER AND ANY CONTRACT ENTERED INTO WITH SUCH SUB-CONTRACTORS, SUPPLIERS OR ASSOCIATED COMPANIES WILL BE MADE ON THE BASIS OF COMPLIANCE WITH THE ABOVE PRINCIPLES BY ALL PARTIES.

I/WE ACKNOWLEDGE THAT ANY BREACH OF THE FOREGOING PROVISIONS SHALL LEAD AUTOMATICALLY TO THIS TENDER BEING DISQUALIFIED AND MAY LEAD TO CRIMINAL OR CIVIL PROCEEDINGS.THE GOVERNMENT OF MONTSERRAT SHALL TREAT ANY TENDER RECEIVED IN CONFIDENCE BUT RESERVES THE RIGHT TO MAKE THE SAME AVAILABLE TO ANY OTHER FUNDING ORGANISATION OR STATUTORY REGULATORY AUTHORITY EITHER HAVING JURISDICTION OVER THE WORKS OR WHO MAY NOW OR AT ANY TIME IN THE FUTURE HAVE STATUTORY POWER TO REQUIRE DISCLOSURE OF THIS TENDER.

IN THIS CERTIFICATE, THE WORD 'PERSON' INCLUDES ANY PERSONS AND ANY BODY OR ASSOCIATION, INCORPORATED OR UNINCORPORATED; ANY AGREEMENT OR ARRANGEMENT INCLUDES ANY TRANSACTIONS, FORMAL OR INFORMAL AND WHETHER LEGALLY BINDING OR NOT; AND 'THE WORK' MEANS THE WORK IN RELATION TO WHICH THIS TENDER IS MADE.

SIGNATURE…… IN CAPACITY OF ……..

DATE……2016

DULY AUTHORISED TO SIGN TENDERS AND ACKNOWLEDGE THE CONTENTS OF THE ANTI-COLLUSION CERTIFICATE FOR AND ON BEHALF OF:

NAME OF FIRM……

FULL POSTAL ADDRESS……

TELEPHONE NO…… FAX NO ……

SCHEDULE A - LABOUR RATES

I (We) hereby certify that to the best of my (our) knowledge and belief the wages, hours of work, and conditions of labour of all work people proposed to be employed by me (us) on this project for which I (we) am (are) offering myself (ourselves) as a Contractor are fair and reasonable having regard to the statutory provisions regulating rates of wages as are in force in Montserrat on the date of this my (our) Tender and I (we) will accept responsibility for the observance of these regulations by sub-contractors employed by me (us) in the execution of the works.

The above mentioned wages and hours of work are as listed on the following pages:

The Tenderer shall list the labour, by classification, which he proposes to have on the site for performing all of the work, together with the applicable hourly rates. The rates stated shall include all fringe benefits, overhead and profit.

Class of Work-person	**Rates of Wages (*) $/hr.**	**Hours of Work (**)**
Foreman		
Mason		
Carpenter		
Steel bender/fixer		
Skilled Labourer		
Labourer		
Electrician		
Tiler		

I (We) shall pay . . . . . times the above rates of wages for normal overtime work in excess of . . . ... hours per work day and Saturdays and . . . . . times the above rates of wages for work on Sunday and Statutory Holidays.

* per hour
** In a normal working day

Dated this ..... day of 2016

..... (Signature) (Name in Block Letters)

being an officer of, and duly authorized to sign on behalf of

.....……..

.....…….
(Business Address)

.....
(Telephone)

SCHEDULE B CONSTRUCTION MATERIALS

On the following page(s) I (We) have listed to the best of my (our) knowledge all of the required construction materials to be incorporated into the Permanent Works, together with the names of my (our) proposed suppliers and the unit for each material including the country of origin thereof if not locally sourced.

We have satisfied ourselves that the suppliers' delivery schedules are realistic and/or we have satisfied ourselves that materials are available in sufficient quantities to execute the works without delay, and that materials conform with all requirements of the Specification.

We understand that all materials will be subject to inspection and tests by the Architect/Contract Administrator.

Material	Supplier	Unit Cost (EC$)
Wall straps		
Sand		
Aggregate		
Cement		
Grout		
Reinforcement mesh A393		
Reinforcement mesh A142		
Nail Plates		
Reinforcement – 3/8"		
Reinforcement – ½"		
Reinforcement – 3/8"		
Reinforcement – 1/4"		
Lumber – 2" x 4"		
Lumber – Form Finish Ply 1/2"		
Lumber – Form Finish Ply 3/4"		
Truss clips		
Lumber - 2"x6"		
Lumber - 4" x 6"		
Lumber - 1" x 3"		
Lumber - 2"x 5"		
Threaded bolts, nuts, washers		
Aluminum windows		
Corrugated galvanized sheet		
Concrete screws		
Galvanized Nails		
Flashing		
Annular ring nails		
Paint, thinners		
Conduit		

Earth rod and clamps		
Switches		
Main switches		
Consumer Units		
Extractor Fan		
Luminaries and lamps		
Flush tank		
Rainwater Tank		
Water Pumps		
Lamp holders		
Outlets 110, 240		
Toilet		
Lavatory Basin		
Kitchen sink		
Soap Dish Holder		
Towel Rail		
Shower Curtain Rod		
Hot water tanks		
Solar panel		
Doors, Locks		
12” x 12” non- skid ceramic tiles		
12” x 12” ceramic tiles		
6” x 6” ceramic tiles		
2” x 2” mosaic tiles		
Hinges		
1.5 electrical surface wire		
2.5 electrical surface wire		
10 electrical earth wire		

Dated this ..... day of 2016

..... (Signature) (Name in Block Letters)

being an officer of, and duly authorized to sign on behalf of

.....……..

.....…….
(Business Address)

.....
(Telephone)

SCHEDULE C CONSTRUCTION EQUIPMENT

I (We) propose to employ the following construction machinery and equipment for the execution of the Works and to the best of my (our) knowledge, the equipment listed is in sufficient capacity to construct all of the Works within the time specified for completion.

Note: Indicate (*) if equipment is to be rented or sub-contracted locally, and provide details. Also list the rate of hourly hire of all equipment for Day-work purposes. Do not list hand tools or normal tools required by trade persons.

Description of Equipment	Hourly Rate for Day-work (EC$)
Concrete Mixer (with hopper)	
Concrete Mixer (without hopper)	
5 Ton Lorry	
3 Ton Lorry	
Vibrator	
Backhoe	
Bobcat	
Excavator	

Dated this ..... day of 2016

..... (Signature) (Name in Block Letters)

being an officer of, and duly authorized to sign on behalf of

.....……..

.....……(Business Address)

.....
(Telephone)

SCHEDULE D - LIST OF PROPOSED ESTABLISH SUB-CONTRACTORS

I (We) propose to sub-contract the following parts of the Works to the sub-contractors listed below. I (We) agree not to make changes to this list without the written consent of the Project Manager.

In my (our) opinion, the sub-contractors named hereunder are reliable and competent to perform that part of the works for which each is listed and, in any case, I (we) understand that all proposed sub-contractors shall be subject to the Architect/Contract Administrator's written approval.

Name and Address of Sub-Contractor	Part of the Works
	Steel Bender/Fitter
	Electrician
	Carpenter
	Mason
	Painter
	Landscaping
	Labourer
	Plumber

Dated this ..... day of 2016

..... (Signature) (Name in Block Letters)

being an officer of, and duly authorized to sign on behalf of

.....……..

.....…….
(Business Address)

.....
(Telephone)

Government of Montserrat

CONTRACT PERFORMANCE REPORT

GoM Contract Ref	Start Date	Contractual Completion Date
Service/Item Code	Contractor & VDB No (if known)	
Delivery Point	Project & Contract Title	
Original Contract Value	Original Programme (weeks)	Actual Completion Date:
Completion Value (if agreed)	Final Programme (weeks)	Would you use them again? Yes / No
Any problems with performance or advance payment guarantees?		Yes / No

Comments	CP score ✓ as appropriate	5 - good	4 - good	3 - poor average	2 poor	1 awful
Organisation						
Quality						
Personnel						
Environment						
Safety						
Commercial						
Manufacturing						
Technical						
Time						

Additional information (if necessary amplifying comments, eg why would you use them again if they had scored poorly, were delays/increases in cost the fault of the supplier):

Signed (Project Officer)	Date:

Annex B to
04_01_42523
Dated 4 Sep 15

DETAILED PROJECT SPECIFICATION

Contents list **Page**

INTRODUCTION

1. This Specification is to be read in conjunction with the Drawings and Bill of Quantities (BoQ). The Specification provides the standards for materials that are to be incorporated into the works and for the quality of workmanship. The Specification also provides the responsibilities of the Contractor during the Project. The Clients Representative (CR) will be appointed prior to the commencement of works and will be the deciding authority on compliance with the Specification.

2. The Project is the installation of a 2/3/4 bed single storey dwelling constructed from reinforced concrete columns and ringbeams with reinforced block walls on a reinforced concrete ground slab. The roof is timber truss with corrugated sheet cladding. A single phase electrical supply from the local authority will supply power and lighting throughout the dwelling. A water supply will be taken from the local authority and supply sinks, toilets and shower units within the building and waste water will connect from the building into the local authority sewerage system.

PRELIMINARIES

3. The Contractor shall be responsible for all aspects of mobilisation including moving all personnel, equipment and materials to site. Before tendering for the contract the Contractor is to have visited site to ensure they are satisfied with the access to the site and space available for site storage and other facilities.

4. The Contractor shall be responsible for site security and shall make arrangements to prevent as far as is practicable the unauthorised access to site both during and outside of working hours. The Contractor is responsible for the security of all materials and equipment on site and also for the building under construction until formal handover to the Client.

5. The Contractor shall provide suitable facilities for the workforce welfare, either onsite or close to site. These welfare facilities are to be appropriate to the duration of project and may include toilets, restrooms, changing facilities, showers. The Contractor is responsible for securing the use of other nearby facilities with the relevant owner(s).

6. The Contractor is to comply with all regulations applicable to construction work in Montserrat.

7. The Contractor may subcontract elements of the work, however must inform the CR of all sub-contractors and consultants, and is responsible for ensuring all sub-contractors or

consultants comply with all aspects of the project documentation. All project communication from/to any sub-contractors/consultants must go through the Contractor as the CR will not deal directly with any sub-contractors/consultants. The Contractor retains full responsibility to the Client for all aspects of the project.

8. The Contractor is responsible for the health and safety management of the project. They must ensure all works and personnel on site comply with the safe systems of work (SSoW) as follows:

a. **Safe people**. Personnel working on site are trained to carry out the work that they are tasked to do. PPE appropriate to the task should always be worn.

b. **Safe equipment**. All equipment utilised on site should be suitable for use on construction sites, for example 110V power tools supplied from a centre tapped transformer.

c. **Safe place**. The site should be kept free of hazards to ensure save movement around site and barriers used as applicable to prevent movement through area where hazards exist. Safety signage must be used to warn personnel coming onto and near site of the relevant hazards and of the requirement(s) for wearing PPE.

9. The Contactor must have a Site Health and Safety Plan and ensure all personnel coming onto site, either workers or visitors, are suitably inducted, wear suitable PPE on site and if required are escorted on site.

10. The Contractor is required to hold sufficient third party liability insurance for all activities on site and for all possible risks to workforce, visitors and other parties.

11. The Contractor shall be responsible for the arrangement of any services required by other parties, for example the provision of mains electricity and water supplies by Montserrat Utilities Limited (MUL).

12. The Contractor shall ensure that works are progressed in accordance with the outline works programme towards agreed anticipated completion dates. Any significant deviation from the scheduled delivery of works shall be explained to the CR. The Contractor where possible shall make up on programme slippage unless agreed by the CR that the overall project delay is acceptable.

13. The Contractor shall remain liable for all defects within the project for a period of 6 months from the date of formal handover. It is recommended that a retention amount of 5% of the project value is retained by the Client and payable to the Contractor 6 months from the date of formal handover providing all defects have been satisfactorily remedied.

GROUNDWORKS

14. **Setting out**. All structures are to be accurately set out (line and level) by competent persons, using calibrated equipment. All setting out is to be recorded in the project diary, including details of how it was undertaken and what checks were used to ensure that the coordinated points were correct. The Contractor is responsible for the accuracy of this element of the project and the correction of any errors which result. The following are to be observed when undertaking survey works:

a. The Contractor shall set out all necessary secondary and tertiary control, including benchmarks for levelling, as required / deemed necessary to accurately establish the line and level of all works on site.

b. The Contractor shall chalk line mark out the main building alignment. The CR will check the line of the setting out before the Contractor is permitted to break ground on excavations.

15. **Ground water level**. The ground water level has not been established by the designer. The Contractor is to establish the ground water level and take necessary precautions during excavation works.

16. **Preparatory work**. Before starting the work, adequate provision shall be made to ensure that excavations are protected from collapse, protected from plant, machinery, material or personnel falling in. Full consideration is to be given to the sequencing of work when working in close proximity to adjacent excavations to ensure the safety of the work force. Any vegetation, trees and their roots are to be fully removed where construction is to take place.

17. **Surplus excavated materials**. Suitable surplus excavated materials can be spread, levelled and if required compacted on site to make up levels in areas where there are no vehicle traffic or building works.

18. **Hazardous, aggressive or unstable materials**. Do not use fill materials which would, either in themselves or in combination with other material or ground water, give rise to a health hazard, damage building structures or instability in the filling.

19. **Water**. Keep excavations free from water until below ground construction is completed.

20. **Placing fill generally**. When placing fill:

a. Ensure that excavations and areas to be filled are free from loose soil, rubbish and standing water. The sides of excavations trimmed / battered to ensure that loose material does not fall in during the backfilling operation.

b. Place and compact fill against structures, membranes or buried services in a sequence and manner which will ensure stability and avoid damage.

c. All fill shall be placed in layers not exceeding 50mm (2”) and shall be fully compacted.

d. Ensure plant machinery employed for transporting, laying and compacting is suited to the size of area of fill material (vibrator roller, vibrating plate compactor, vibro-tamper, power rammer or other suitable means to formation level).

e. Ensure that no damage is caused to adjacent works during compaction.

21. **Fill and concrete materials**:

a. **Hardcore under concrete foundations**. The hardcore is to be crushed brick or crushed river gravel or aggregate, free from organic matter or clay.

b. **Blinding to hardcore**. Surfaces to receive sheet overlays or concrete are to have sufficient sand, fine gravel or other approved fine material applied to provide a close smooth surface. Permissible deviations on surface level: ± 10mm ($^{3}/_{8}$”).

c. **Fine aggregate**. Fine aggregate for concreting shall be 5mm ($^{3}/_{16}$”) nominal sized crushed and washed rock particles or washed sand, free from silts and clay.

d. **Course aggregate**. Course aggregate for concreting shall be 20mm ($^{13}/_{16}$”) nominal sized crushed and washed rock particles, free from silts and clay.

e. **Aggregate**. 0 - 40mm (0 - 1 $^{9}/_{16}$") Type 1 Aggregate, continuously graded material from crushed, washed aggregated, free from clay and silt. The specification (sieve grading proportions) for the aggregate is in Table 1 below.

Serial	BS Sieve size	Granular sub-base material percentage passing by mass	Remarks
		Type 1	
(a)	(b)	(c)	(d)
1	75mm	100	
2	37.5mm	85-100	
3	10mm	40-70	
4	5mm	25-45	
5	600µm	8-22	
6	75 µm	0-10	

Table 1. Granular sub-base Type 1 grading limits.

f. The material shall be placed, wetted and compacted fully in layers not exceeding 50mm (2").

g. **Compaction**. The Formation Level (FL) of the foundations is to be compacted to refusal using a vibrating compactor. Following compaction, levels and location are to be checked at 1m (3' 3 ½") intervals along the entire length by a Surveyor. The formation level of the foundation should be levelled to a tolerance of ± 5mm ($^{3}/_{16}$") along its entire length by a Surveyor.

h. **Fill material**. Fill material is to be a suitable aggregate/hardcore for back filling. The fill material is to be placed within each section of the structure and spread by hand to achieve compacted layers of 50mm (2").

i. **Compaction of fill**. Four to six passes of a vibrating compactor is recommended. Care must be taken to ensure contact is not made with walls while using the vibrating plate compactor.

CONSTRUCTION

22. The construction works shall include all labour, equipment and materials to carry out the construction elements of the building. The construction is to consist of the following:

23. **Foundation slab**. Reinforced concrete raft foundation. This consists of a 200mm (8") thick concrete slab reinforced with A393 reinforcement mesh, with a thickening around the perimeter and beneath the internal columns. The slab is to be positioned on 300mm (12") of well compacted aggregate, 50mm (2") of sand blinding and Damp Proof Membrane (DPM). The DPM, where lapped is to have 150mm (6") laps which are taped for their full length. Both the top and bottom layers of mesh is continuous over the whole of the slab. Where there are joints in the mesh, there is to be a minimum overlap of 200mm (one complete square) with each square being tie wired together. The perimeter heel is to be reinforced at 200mm (8") intervals using shape code 64 as shown in the drawing pack. Slab thickening for the front wall and utility room will be reinforced at 200 mm (8") intervals using shape code 46. Column bases are to be tied into both the top and bottom layer of mesh. Reinforcing is to have a minimum cover of 50mm (2"); all joints are to be tie wired. It should be noted that this foundation slab is a generic design and may need to be modified as agreed with the CR to suit the location and local ground conditions. The foundation is designed to be ground bearing. The structure is not designed to be elevated on stilts. Any levelling of the ground or elevation of the structure due to local topography must be specifically designed by an engineer with an understanding of ground conditions and seismic loading.

24. **External walls**. Blockwork walls with vertical reinforcement bars and reinforced concrete columns and ring beam at eaves level. Reinforcing is to have a minimum cover of 50mm (2”) and any joints lapped by 40 x diameter, with all joints being tied together using tying wire. A DPC is to be positioned at the interface of all block work and the floor slab, the DPC should project beyond the base of the block work so that it can be folded down beneath the external render. Three and Four bedroom housing will have reinforced masonry support walls constructed internally to resist bending stresses on long runs of walls. Support walls will be constructed as per external walls and tied into the foundation slab and concrete ring beam at eaves level. Internal support walls will not be terminated with a reinforced concrete column.

25. **Roof**. Timber truss, double hipped roof with purlins, 12mm ($^1/_2$”) plywood sarking and clad with corrugated galvanised sheet. Every truss/rafter is to be sat on the 50 x 100mm (2 x 4”) wall plate and secured with a truss clip, additional tie down security is provided by wall straps to every truss/rafter.

26. **Internal walls**. Timber stud internal walls clad with 12mm ($^1/_2$”) plasterboard on both faces. Sole plates are to be jointed with a 200mm (8”) overlaps and fixed to concrete floor with 125mm (5”) bolts. Services are to be run in the void between faces. Plasterboard joints are to be taped and finished with a 2mm ($^1/_{16}$”) skim coat of wet plaster until a surface finish accuracy of 5mm ($^3/_{16}$”) is achieved. With the exception of areas which are to be tiled plasterboard is to be finished with a primer coat and two finish coats of water based emulsion.

27. **Doors and windows**. Doors shall be constructed from wood, aluminium or uPVC, in accordance with the associated drawings or as required by local regulations. Door selection to be approved by the CR prior to purchase. All glazing used in the doors and windows is to be laminated safety glazing and impact resistant as per local requirements. All doors and windows are to be fitted as per the manufacturer’s instructions and recommendations.

28. **Doors and window installation**. Install door-sets and windows so they are plumb, level, straight and true. They should be adequately fixed or anchored to the building structure and allow for thermal movement and will not carry any building load. All doors and windows should not exceed 3mm ($^1/_8$”) difference measured across the diagonals. All flashing and weatherings are to be installed to prevent water from entering the building. Finish installations with trimmings to make a neat, clean junction which ties into to adjoining building surfaces.

29. **Doors – internal**. All wooden doors shall be primed using a suitable primer and finished with 2 coats of external grade brown gloss metal paint. Doors are to open as detailed on the relevant drawings and to be made to order as per opening size as shown in the associated drawings.

30. **Doors – external**. Doors are to fit a reveal of 2095 x 930mm (82½” x 36$^2/_3$”). They are to have ventilation louvres in which can be closed by the user as required[1]; the particular model available comes complete with door ironmongery. Internal doors are to be wooden half louvred with 75mm (3”) blades made to measure[2].

31. **Windows**. External windows[3] are to be a white aluminium frame with aluminium (4” wide louvres). The opening device is to be via a handle locking bar, and the window will have a security/fly mesh. Two sizes will be required, reveal size:

a. Bathroom and utility room; 1230H x 1000W (approx 48½” x 39½”).

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[1] Three pane vented door 900 x 2100 mm (3’ x 6’ 11”) sourced from www.tarokodoor.com.
[2] A half louvred door is required which is 44mm (1$^3/_4$”) thick, as per www.reliabledoorsandwindows.com.
[3] Sourced from www.stegbar.com.au.

b. Bedroom, living room and kitchen; 1230H x 1300W (approx 48½ “x 51”)

Concreting

32. **Reinforcement**. All reinforcement shall be ribbed cold worked high tensile steel ($F_{y\ (min)}$ > 250 N/mm^2). All reinforcement shall be accurately cut and fixed, ± 10mm ($^3/_8$”) in any plane) and free from loose surface rust or any substance (in particular from oil) which may adversely affect the bond strength. All reinforcement shall be free from twists and bows and in the case of shaped bar, accurately formed in accordance with the design detail.

33. **Laps in bar reinforcement**. Laps in reinforcement bar shall be a minimum of 40 times the bar diameter. Bars shall be held in position by an adequate number of tie wires and shall not be welded. Reinforcing bars in slabs and bases shall be supported at spacings of one metre to ensure the correct cover. Laps in pre-formed reinforced fabric sheets shall be a minimum of one full cell in any direction and held in position with tying wire. Lapped sheets shall be laid down with alternate opposing faces to allow the reinforcement to remain in the same plane within the concrete.

34. **Minimum cover to concrete**. In no instances shall the reinforcement steel have less than 50 mm (2”) of concrete cover measured in any direction unless otherwise stated. Particular attention should be made to cover being maintained to the sides of beams and other vertical sides.

35. **Fixing reinforcement**. All reinforcement shall be adequately fixed with suitably spaced tie wires and spacers to ensure that deflection and movement is minimised when the concrete is placed. Every intersection shall be tied. Proprietary concrete or plastic spacers shall be used at suitable centres, not more than 500mm (20”) in order to maintain the specified cover. Spacers shaped reinforcement bar and/or links are to be used to space the reinforcement within the body of the concrete.

36. **Cleanliness**. At the time of placing concrete all surfaces on which the concrete is to be placed shall be clean, free from debris and standing water.

37. **Concrete mix designs**. Care shall be taken in the design and batching of the concrete mixes to ensure that the mixes consistently achieve the requisite stated strength. The Contractor should conduct trial mixes using the type of cement and samples of the aggregates to be used on the project to check that the strength is obtained. Only crushed washed fine and course aggregates shall be used in mixes. Only cement that is quality PC 42.5 grade which is in date and has been kept in a moisture free environment shall be used. The water used in any concreting shall be of drinking quality (i.e. from a deep borehole and free from excessive salt levels).

38. **Structural concrete and non-structural concrete**. All structural concrete, i.e. all concrete with reinforcement within it shall be C30 grade; that shall have a minimum expected crushing strength of 30 N/mm² at 28 days. Due to the congestion of some of the reinforcement detailing, the maximum aggregate size shall be 20 mm ($^{13}/_{16}$”) for course and 5mm (2”) for fine. The nominal slump shall be 50 - 100mm (2 – 4”)[4], unless otherwise specified.

39. **Concrete foundations**. The Contractor shall construct steel reinforced raft foundations in strict accordance with the design drawings. The size of the aggregate shall not exceed a nominal 20mm ($^{13}/_{16}$”). Where slabs, bases and beams rest on the ground a minimum of

[4] As per BS 8500-1:2015, Table B1, for slump class S3.

50mm (2”) sand blinding shall be placed to provide firm support to reinforcement prior to casting the structural concrete.

40. **Formwork**. All formwork shall be timber board, plywood or steel faced. The Contractor shall ensure that all formwork is adequately supported against bowing, deflection or bursting by suitably sized and spaced primary and secondary support timers and tie bars. The Contractor shall assess the imposed pressure on the form faces when selecting the supports to be used. All formwork is to be adequately coated in form release oil prior to fixing in place. Formwork should be arranged so that the concrete formed is dimensionally correct, ± 5mm ($^{3}/_{16}$”) line tolerance. A check of the line, plumb and level of all form faces should be conducted prior to placing any concrete. The block work walls will form part of the formwork for the reinforced concrete frame. Steelwork is to be fabricated and positioned prior to the positioning of formwork. In the case of beams sitting on a block work wall, metal lathing, Hy-rib, 0.4 mm, 3 rib (178 mm wide) (from www.hy-rib.com) is to be positioned the length of each wall section to prevent concrete seeping into every block void. Lap joints in lathing should be 200mm (8”). The only voids to be filled are those containing vertical reinforcing, care should be taken to ensure the two reinforcing bars in these voids are evenly spaced.

41. **Concrete output and movement**. The concrete pour shall be planned and adequate concrete batching resources provided for each task. This includes providing sufficiently large capacity of mixers to place the entire pour in one set period and without delay. Adequate means of moving the concrete from the batching plant to the location where it is placed without delay and without segregation shall be provided.

42. **Placing and compacting concrete**. The concrete shall be compacted through the entire depth (until air bubbles cease to appear on the top surface), paying particular attention to the compaction around reinforcement, corners of formwork and at joints. Care should be taken to not over compact otherwise segregation will occur. All concrete poured between concrete masonry to form columns should be poured in 400mm (15 ¾”) layers and sufficiently vibrated to ensure concrete has distributed sufficiently between blockwork and all voids covered (1% air void = 5-6% loss in concrete strength).

43. **Joints**. Joints in concrete should be avoided wherever possible. This can be achieved by ensuring the sequencing and sizes of pours are fully planned. Where joints need to be formed, for horizontal pours, stop boards shall be used to form a vertical plane. The concrete at all joints shall be scabbled (chipped and roughened) whilst the concrete is still green, with all loosened material removed. The faces of all joints should be dampened before placing fresh concrete of the next lift against it.

44. **Striking formwork**. Formwork shall be kept in place as long as is possible (ideally 7 days). The formwork shall be eased away from the concrete with minimal impact.

45. **Concrete finish**. Do not wet concrete surfaces or sprinkle cement onto the surface in order to assist surface working/finishing. Slabs should be a float finished once the initial set has occurred. All top exposed edges of slabs should be cut away from the form face with a bull-nose trowel to form a radius finish to the perimeter sections. A steel hand or pole mounted float may be used to give an even surface of ridges or steps. Care should be taken to not over-work the surface of the concrete during trowel finishing. The concrete shall be finished to ensure the surface has a maximum ± 3mm ($^{1}/_{8}$”) vertical difference over a 3m (9’ 10”) horizontal straight edge. Do not add extra water to concrete mixes to aid workability.

46. **Curing and protection**. The concrete is to be cured in a manner suitable to the environmental conditions to prevent surface evaporation from concrete surfaces during the setting and hardening of the concrete.

47. **Lintels**. Door and window lintels will be incorporated as part of the upper ring beam. Parts of the ring beam acting as a lintel should be cured for 4 days prior to striking formwork.

Masonry works

48. **General**. All masonry works shall be bedded on 1:4 cement sand mix mortar. Blocks should be fully soaked in water prior to laying. All masonry should be constructed so that the beds are horizontal and the faces vertical. The setting out and forming of all masonry works accuracy tolerance should be no greater than ± 10mm ($^3/_8$") in the horizontal plane and ± 10mm ($^3/_8$") over 3m (9' 10") vertically. All masonry works should be cured as soon as sections of works are completed. The maximum lift height per day is 4 courses for block work. All masonry shall be in stretcher bond unless otherwise stated in the drawings. All openings in masonry shall be accurately formed using timber frames to aid dimensional control.

49. **Block work reinforcement**. Block work shall have two bars of vertical reinforcing in every 6th core (based on the assumption there will be two cores to a block), fixed as specified in the relevant drawing. Once positioned and fixed, voids with reinforcement are to be filled will C30 concrete and suitably compacted to remove voids. Every other block work course is to be laterally reinforced using Hy-rib, 0.4 mm, 3 rib reinforcement. Mesh is to be sat in a bed of 10mm ($^3/_8$") mortar, ensuring the reinforcement sits centrally on the block work. Where there are joints in mesh then sections are to be overlapped at least one complete square, 200mm (8"). Masonry reinforcement is to be constructed in compliance with BS 5628-2.

50. **Masonry mortar**. Mortar for brick and block laying shall be mixed from washed building sand, quality PC 42.5 grade cement and clean water.

Roofing

51. The roof is to be a dual hipped design with a 30° pitch all round. The roof section with the ridge will consist of several full size timber trusses (as shown on construction drawings), the end two of which have been doubled up (at either end of the ridge). Trusses are to be of 'fink' design using 100 x 150 mm (4 x 6") timber, joints will be made using varying sized nail plates as shown in the design drawings and fixed using 4.5 x 100mm ($^4/_{25}$ x 4") clout nails and plates both sides of each joint. Nails should not be positioned closer than 53mm (2 $^1/_{16}$") from the end of any beam (to prevent splitting along the grain), further guidance can be taken from table 2 (an extract of BS 5268:2-2002, Table 60).

Spacing	Timber-to-timber joints		Steel plate-to-timber joints		Joints between timber and plywood or particleboard or OSB	
	Without pre-drilled holes	With pre-drilled holes	Without pre-drilled holes	With pre-drilled holes	Without pre-drilled holes	With pre-drilled holes
End distance parallel to grain	20*d*	10*d*	14*d*	10*d*	14*d*	10*d*
Edge distance perpendicular to grain	5*d*	5*d*	5*d*	5*d*	— [a]	— [a]
Distance between lines of nails, perpendicular to grain	10*d*	3*d*	7*d*	3*d*	7*d*	3*d*
Distance between adjacent nails in any one line, parallel to grain	20*d*	10*d*	14*d*	10*d*	14*d*	10*d*

NOTE *d* is the nail diameter.

[a] The loaded edge distance in the timber should be not less than 5*d*. The loaded edge distance in the plywood should be not less than 3*d*. The loaded edge distance in the particleboard should be not less than 6*d*. In all other cases the edge distance should be not less than 3*d*.

Table 2. Nail positions.

52. Each truss and jack rafter will be fixed to the 50 x 100mm (2 x 4") wall plate using a truss clip and 2 x 25mm ($^1/_{16}$ x 1") annular ring nails. An additional wall strap is to be used on every jack rafter and truss where the beam sits on the wall plate. This pre-shaped strap will wrap over the top of the horizontal spar on all trusses and over the top of the base of each jack rafter. Each strap will be secured to the spar using 3 No 50 x 2.65mm (2 x $^3/_{32}$") annular ring nails. The tail of each strap will be fixed to the block work using 6 No 100 x 7.5mm (4 x

$^{5}/_{16}$") concrete screws at 150 mm (6") intervals, leaving 100mm (4") spare at the bottom end. Care should be taken to ensure that the strap is flush with the wall prior to plastering.

53. The hip is to be formed using two, doubled up, sub trusses spaced at 1232mm (4' ½") and 1181mm (46 ½") intervals respectively from the full truss. The hip section, will run from the outer corner of the building to the end of the ridge. Care should be taken to ensure that the top of the hip beam is in line with the truss line to allow purlins to be fixed around the roof. Jack rafters are to be fixed perpendicularly to the length of the building as shown, these will be fixed to the wall plate as per the truss detail but fixed to the sub trusses using 4 No angle plates as shown in the drawing pack.

54. Purlins (51 x 127mm, (2 x 5")) are to be fixed to the roof frame at maximum 600mm (2') intervals from the ridge down, they are to run around the whole of the roof forming a continuous "rail". Purlins will be fixed to trusses/ jack rafters using 4 No V52 universal framing anchors, per intersection and attached using 2 x 30mm (1 $^{1}/_{16}$ x 1 $^{3}/_{16}$") square twist nails in every hole.

55. Longitudinal bracing (22 x 89mm, $^{7}/_{8}$ x 3 ½") is to be positioned at every node point and to run the length of the building (between each end truss). Bracing is to be fixed at each node point using 2 No 3.35 x 54mm ($^{1}/_{8}$ x 2 $^{1}/_{8}$") round wire galvanised nails skew nailed to each truss.

56. Sarking, 1200 x 2400 x 12mm (4 x 8' x ½") plywood is to be fixed to the purlins every 200mm (8") using 3.75 x 75mm ($^{1}/_{8}$ x 2 $^{15}/_{16}$") annular ring nails. Where two sheets butt together, this joint should be made on a truss or jack rafter with each equally sharing the support. Both sections should be fixed at 200mm (8") intervals. Sarking should be terminated 50mm (2") in each direction from the ridge centre line to assist in ridge ventilation.

57. Corrugated Galvanised Iron (CGI). The roof is to be made water tight using CGI sheeting, 990 x 5200mm (39 x 204 ¾") with a 3" pitch and ¾" depth. Each sheet is to be fixed using 65mm (2 $^{9}/_{16}$") galvanised spring head nails on every third corrugation. The end of each sheet should be fixed at every other corrugation. Where laps occur, sheets should be lapped two corrugations and fixed on the ridge of the two edge corrugations. It should be noted that fixings should be positioned to be coincident with purlins so that the fixing goes through the sarking and into the purlin below. In the case of the hip joint, CGI should be fixed at the head at every other corrugation, the fixing should go into the hip rafter.

58. Flashing, 200 x 200 x 3000mm (8" x 8" x 9'10") hip and ridge flashing is to be used along each hip joint and ridge, fixed at every other corrugation using 65mm (2 $^{9}/_{16}$") galvanised spring head nails, where required, end laps should be 150mm (6"). A vented ridge cap flashing is to be used in order to assist ventilation and pressure build-up in the roof space, fixed to every other corrugation using 65mm (2 $^{9}/_{16}$") galvanised spring head nails.

59. All timber is to be structural timber strength class C16, having a moisture content of no more than 20%, in accordance with BS EN 519:1995.

Additional structures

60. **Gas storage**. The gas storage outbuilding is to be a contractor designed, steel frame corrugated iron clad construction on top of a reinforced concrete pad. The roof system is to be a lean-to timber frame with CGI sheeting (CGI exposed sheet ends are to be capped to prevent injury to persons).The concrete pad is to have 6mm (1/4") diameter A142 steel mesh reinforcement. There is to be two anchoring points inside the outbuilding to restrain gas canisters. The outbuilding is to be secured by two galvanised steel frame/chain link gates. The gates are to be fitted with a drop bolt facility and main locking device (pad-lock operated).

61. **Rain water harvesting platform**. The rainwater harvesting tank is to be mounted on a 1000 x 1000 x 1200mm (40 x 40 x 48") unreinforced hollow concrete block wall and 1400 x 1400 x 200mm (55 x 55 x 8") reinforced concrete pad. The concrete pad is to have 6mm ($^1/_4$") diameter A142 steel mesh reinforcement. The hollow section is to be back filled with 20-40mm ($^{13}/_{16}$ x 1 $^9/_{16}$") well graded aggregate and compacted in 100mm (4") layers. An appropriate fixing is to be used to secure the container to the platform. All blockwork and fixings are to be rendered as per the main building. The exact position of rainwater harvesting tank is to be selected on site but is not to obstruct doors or windows and is to be a minimum of 1 m from the external wall.

ELECTRICAL INSTALLATIONS

62. The electrical installation work shall comprise all labour, equipment and all materials necessary to install the distribution and final circuits within the house. The incoming electricity supply is 220 Volts, single phase and neutral, AC, 60 Hz, TT System. The electrical installation is to consist of the following:

a. Supply cable, supplied and installed by MUL.

b. Electricity meter and suppliers fuse, supplied and installed by MUL.

c. Meter tails.

d. Client's point of isolation, supplied and installed by Contractor.

e. Split load distribution board.

f. 110V Transformer.

g. Cable management system.

h. All final circuits including lighting, sockets, extract fans and fire alarms.

63. The Electrical Contractor is to submit samples of proposed materials and equipment for approval before work is started. Materials used in the works shall comply with the Specification, be new and unused.

64. **Electricity meter and suppliers cut out fuse**. The installation of the supply cables, electricity meter and suppliers cut out fuse is to be the responsibility of the local electrical authority, MUL. The Contractor is to install a suitable enclosure for the termination of supply cables and installation of meter and cut out fuses to protect against damage and provide weather protection.

65. **Isolation**. The installation is to be fitted with a means of isolation between the electricity meter and the distribution board. This is to be in the form of a double pole isolation switch. The isolator is to be rated at 100A and is to comply with the requirements of BS EN 60947-1:2007+A2:2014 and BS EN 60947-3:2009+A1:2012. The isolator is to be mounted individually in an enclosure secured to the wall.

66. **Consumer unit**. The consumer unit is to comply with the requirements of BS EN 61439-3:2012. The consumer unit is to be constructed of non-combustible material with removable top and bottom gland plates as well as removable internal parts. Ferrous metal is deemed to be an example of a non-combustible material, thermoplastic is also acceptable. The consumer unit is to be IP2X as a minimum; precautions are to be taken to maintain the enclosure's integrity at cable entry points using suitable glands.

67. The consumer unit is to be a split load board supplying 220V and 110V circuits. The consumer unit and all protective devices fitted within shall be made by the same manufacturer. Earth and neutral bars are to be provided within the consumer unit with sufficient terminals to allow neutral and earth cable connections to correspond with the respective circuit protective device.

68. The consumer unit is to be securely fixed to the wall at a height of 1400mm (4'6") above finished floor level (AFFL). Blanking plates are to be fitted to all spare ways and each outgoing way shall be labelled on the front of the consumer unit. Circuit identification diagrams shall be provided at the consumer unit.

69. **Residual current device (RCD)**. The RCD is to be a 63A DP 100mA time delay S-type double pole RCD conforming to the requirements of BS EN 61008-1:2004+A13:2012.

70. **Miniature circuit breakers (MCBs)**. All MCBs are to conform to the requirements of BS EN 60898-1:2003+A13:2012. The characteristics of the circuit breaker shall be suitable for the operating range of the connected load or system, including starting or switching conditions. The current ratings of the circuit breakers can be found on the design drawing schematics. All MCB's are to have a minimum breaking capacity of 6 KA.

71. **Residual current circuit breakers with overload protection (RCBOs).** All RCBOs are to conform to the requirements of BS EN 61009-1:2004+A13:2012. The characteristics of the circuit breaker shall be suitable for the operating range of the connected load or system, including starting or switching conditions. The current ratings of the circuit breakers can be found on the design drawing schematics. All RCBO are to provide Type B characteristics and have a minimum breaking capacity of 6 KA.

72. **Containment**. Horizontal cable runs on walls are to be run in 50x50mm (2x2") PVC trunking which is to be mounted 10mm (½") below the ceiling joist.

73. **Cables**. Conductors used throughout the installation are to be identified by the following colours:

a. Single phase live conductors shall be Brown.

b. Neutral conductors shall be Blue.

c. Protective conductors shall be Green / Yellow.

64. Where blue neutral conductors are used as a switched live in light switching circuits it shall be sleeved with brown sleeving at all points of termination. Green/yellow earth cable shall not be permitted to be used in place of any other conductor at any place within the installation.

65. **Final circuit supply cables**. PVC Twin and Earth cable is to be used for all the final circuits. Twin and Earth cable to BS6004: 2012 is to be used rated at 300/500V. Yellow/green Earth sheaving is to be used at termination points on the uninsulated earth conductor. Cable sleeves are to comply with the requirements of BS3858:1992.

66. **Flexible cables**. The flexible cable installed is to comply with the requirements of BS 50525-2-11:2011. 2.5mm^2 3 core cable is to be used to terminate to water pumps and the water heater. The Length of cable is to be sufficient to allow the termination not to be under stress. The cable should however be as short as possible to achieve this. All Bends in flexible cable are to be a minimum bending radius of 6 times the overall diameter of the cable. Cable type is to be suitable for the ambient temperature range in which it will operate.

67. **Meter tails.** The meter tails are to comply with the requirements of BS6004: 2012. The meter tails are to be double insulated throughout their length. The length of cable is to be sufficient to allow the termination not to be under stress, however should not be longer than 3m in length between meter and the consumer's main intake switch.

68. **Main equipotential bonding cables**. Any metallic incoming service pipes are to be connected to the Main Earthing Terminal (MET) by main equipotential bonding. Connections to service pipes are to be made as close as possible to the point of entry into the building. Earth bonding cables are to be single core 6491X PVC insulated with stranded copper conductors conforming to the requirements of BS6004: 2012. The sheath colour is to be green/yellow. The Main Equipotential bonding conductors are to be a minimum of $10mm^2$ CSA. The cables are to be terminated with compression lugs secured with nuts and bolts or using and earth clamp. Sufficient conductor is to be exposed to the termination to receive the maximum surface contact area.

69. **Cable installation**. Cables are to be installed neatly and securely, and are to be adequately protected against accidental damage, adverse environmental conditions, mechanical stress and harmful substances. Cables are to be installed without joints other than at equipment and terminal fittings. Cables are to be clipped direct to the fabric of the building and covered with steel capping wherever it will be covered by the fabric of the building. All cable runs are to run horizontally or vertically from the point of termination at a socket, switch or other piece of equipment to the next accessory or to the top or corner of a wall. Diagonal cable runs are not to be allowed. The cables shall be adequately supported so as not to put any strain on the cable terminations through the use of glands, cleats and clips as applicable. Cables clipped direct are to be supported at spacings of 250mm (10") horizontally and 400mm (15") vertically.

70. **Segregation**. A minimum of 150mm (6") separation is to be maintained between runs of cable and other services.

71. **Earth electrode**. The Earth electrode and earthing equipment associated with the electrode are to comply with the requirements of BS 50164-1:2012 and BS951:2009. The resistance of the earth electrode will be as low as practicable, a resistance to earth value exceeding 200 ohms is not acceptable. Additional earth electrodes are to be installed in parallel to the original electrode to achieve this value. The first connected earth electrode is to be installed in an inspection pit to ease in disconnection and testing.

72. **220/120V transformer.** The 220/110V step down transformer is to have a continuous rating as specified on the drawings. The transformer is to be an autotransformer or double wound transformer type. The transformer is to conform to the requirements of BS EN 60076-1:2011. The transformer is to provide 110V between the live and neutral conductors on the outgoing side of the transformer. The transformer is to be securely attached to the fabric of the building using a pre manufactured metal frame. The frame is to be connected to be bonded to earth.

73. **Switches and socket outlets**. 220V socket outlets shall comply with the requirements of BS 1363. 220V socket outlets are to be flush mounted and are to be 13A three pin shuttered and switched type complete with PVC face plate mounted on a metal box. The metal back box is to be connected to the earth terminal of the face plate.

74. 110V socket outlets shall comply with the requirements of NEMA 5-20R and be capable of receiving both 15A and 20A plugs with an earth connection. They are to be flush mounted. The metal back box is to be connected to the earth terminal of the face plate.

75. All fused connection units (FCU) are to be PVC complying with BS 1363-4:1995+A4:2012. All light switches are to comply with BS EN 60669-1:1999+A2:2008. All FCU and light switches are to be flush mounted.

76. All metal clad back boxes are to be used throughout the installation and are to be electrically connected to the faceplate earth terminal. Boxes shall be fixed to the building independently of the connecting cable or conduit.

77. All Socket outlets other than kitchen unit socket outlets are to be mounted at a height of 450mm (1'6") AFFL. Kitchen unit socket outlets are to be mounted 200mm (8") above the worktop level. All switches are to be mounted at a height of 1100mm (3'7") AFFL.

78. **Luminaires and lamps**. Bayonet lampholders are to conform to BS EN 61184:2008+A1:2011. Luminaires installed in kitchen, utility, bathrooms and externally are to have a minimum protection of IP44. Luminaires are to be installed at the spacing stated on the drawings of the reverent areas. Light fittings are to be securely fitted to the wall at a height of 2100mm (6'10") AFFL. In the kitchen and the porch areas, luminaires are to be secured to the roof joists. Lamps are to be supplied with all luminaires.

79. **Extractor fans**. Extractor fans will be 230V fans with integral pull cord suitable for installation within Zone 2 according to BS7671:2008+A3:2015. Extractor fans are to be mounted at 2000mm (6'7") AFFL. Extractor fans are to comply with the requirements of BS EN 60335-2-80:2003+A2:2009. Extractor fans are to be fitted to the external wall and ductwork is to be positioned between masonry wall reinforcement. All ductwork running through openings are to be sealed with mortar.

80. The bathroom extractor fan will be connected to the local lighting circuit in one of the below configurations:

a. Connected to light circuit permanent live via a double pole (DP) FCU. The fan will be switched using the integral pull cord The DP FCU is to be located adjacent to the extractor fan at high level to minimise unauthorised switching.

b. Connected to light fitting switched live via a DP FCU. The fan will be switched with the bathroom lighting. The DP FCU is to be located adjacent to the extractor fan at high level to minimise unauthorised switching.

81. **Water pumps and heating elements**. The water circulation pumps and instantaneous water heating element are to be connected via double pole switched FCU with a fuse sizing appropriate to the load of the device.

82. **Connection to appliances**. Manufacturer's instructions shall be followed at all times. Any discrepancies between manufacturer's instructions and applicable standards are to be brought to the attention of the CR for decision. A protective conductor shall connect the earthing terminal of each appliance to an earthing terminal incorporated in the circuit switch or connection box.

83. **Fire alarm system**. The fire alarm installation is to comply with BS5839-6:2013 for a LD3 type D installation, a system incorporating detectors in all circulation spaces that form part of the escape route. Two smoke detectors are to be installed in the living area and hallway as per the drawing. The smoke detectors are to be installed within 600mm (2') of the apex of the roof.

84. The combined smoke detector/sounders are to comply with the requirements of BS EN 54:2001. They are to be connected to the local lighting circuit and interlinked either by cables or wirelessly so that an alarm by one will sound both units. They are to have integral battery backup.

85. **Identification and signage**. The Contractor is to provide all circuit information typed and legible, this is to be placed in a clear plastic wallet taped to the back of the door of the relevant distribution board. The following information is to be displayed:

a. Circuit description.

b. Protective device sizes.

c. Circuit protective conductor(s) size in cross sectional area (CSA).

d. Phase conductor(s) size in CSA.

e. Neutral conductor(s) size in CSA.

f. Commissioning information.

g. Details of equipment vulnerable to testing.

86. **Labels and notices**. The following notices are to be displayed in accordance with the latest amendment of BS7671:

a. Electrical supply warning notices on enclosures that are not obviously electrical equipment. Stickers / signs to be black text on a yellow background with the wording “Danger 230V” and a lightning flash inside a triangle.

b. Warning notices of earth and bonding conductors with the wording “Safety electrical connection, do not remove” in black text on a yellow background or on a stamped metal clamp.

87. **Inspection, testing and commissioning**. On completion of the first fix (containment, backboxes and wiring) the circuit is be to insulation resistance tested to early identify any problems that may have occurred during the installation. Any readings below 20MΩ require investigation and remediation.

88. On completion of the installation, an Initial Verification is to be carried out in accordance with BS7671:2008+A3:2015 and an Electrical Installation Certificate completed together with attached Schedules of Inspections and Schedules of Tests. Copies of this inspection and test documentation will be placed in the Health and Safety (H&S) File for handover to the client, and also placed within the consumer unit.

89. All Fire alarm detector/sounders are to be tested using test equipment to simulate smoke. A commissioning certificate for the fire alarm system is to be issued for the H&S file.

MECHANICAL INSTALLATION

90. The mechanical installation work shall comprise all labour, equipment and all materials necessary for the mechanical installations. The mechanical installations are to comprise:

a. Potable water supply from MUL.

b. Waste water connection to MUL sewerage system.

c. Domestic hot and cold water system incorporating sinks, showers, basins, toilets, calorifier, pumps and all supply and waste pipework.

d. Solar water heating system incorporating collector panels, pipework and pumps.

e. Gas installation for connection of portable gas cylinders to cooker.

f. Rainwater harvesting.

g. Small extraction fans.

General – Water Systems

91. **Mains water feed**. The mains feed to 2, 3 and 4 bedroom houses are from the local supplier. The responsibility of the water into the household is from the external isolating valve after the pressure reduction valve, the sizes of the main inlet pipes are as follows:

a. 2 Bed house – 28mm (1") diameter to provide a flow rate of > 0.98 l/s

b. 3 Bedroom house – 35mm (1 ½") diameter to provide a flow rate of > 1.26 l/s

c. 4 Bedroom house – 35mm (1 ½") diameter to provide a flow rate of > 1.46 l/s

92. **Washing machine feed.** Because there is no available information for the type of washing machine that will be used in the houses there is a hot and cold water feed to the point where the washing machine is to be located. This will allow connection to modern and existing designs of washing machines. Each supply is to be fitted with an isolation valve in accordance with the associated drawings to allow isolation of the supply when not needed.

93. **Final appliances.** The pipe sizes are based on the calculated flow rate, the final procurement of the appliance connections may slightly differ to the calculated pipe size. It is to be noted that on purchasing the appliance a reducer may be required to successfully install the appliance into the system.

Copper Pipework

94. The pipework throughout the installation is to consist of copper pipework in accordance to BS EN 1057.

95. **Insulation.** Where the copper pipework is exposed externally to the building it is to be lagged with waterproof insulation material no less than 35mm (1 ½") thickness in accordance with BS 6700

96. **Fittings.** Copper fittings are dependent on the available material at the time of procurement, however the fittings and the methods which they are connected are to be in accordance with BS EN 1254. The recommended fittings to be used on the distribution system are compression fittings in accordance with BS EN 1254.

97. **Positioning of Pipework.** The copper pipe work is to be fixed to the wall using the following spacing between fixings:

a. Horizontal runs are to have a space of no more than 1.8m between fixing points.

b. Vertical runs are to have a space of no more than 2.4m between fixing points.

c. Areas where there is a physical load on the pipe work, or example a valve which can be operated, are to have fixing points to the wall either side of the fitting.

98. Pipes are to be supported using saddle clips, fixed to the wall using 2 No 1½" countersunk screws screwed into a suitable wallplug.

99. **Breaking through walls.** All pipework is to penetrate the walls through a sleeve inserted into the wall and back filled with appropriate expansion foam.

Cold Water Supply and Distribution

100. **Isolating valves.** Isolating valves are to be positioned before every point of delivery, the size of the valve is dependent on the pipe size used at that point. The pipe sizes and isolating valves can be seen in the drawings.

101. **Connection to the toilet.** The main supply of water to the toilet cistern is supplied from rainwater harvesting, however there is to be a connection into the cistern from the main water distribution system. This connection is to be through a 12mm (15/32") copper pipe and tee piece as indicated in the drawings.

102. **Non-return valve.** There is to be a non-return valve located in the main feed to the house at the utility room to prevent the pipes emptying should there be a disruption to the supply. The non-return valve is to be located after the house isolating valve and is either 28mm (1") or 35mm (1 ½"), depending on the house size. This is to be fitted in accordance with the drawings.

103. **Supplied from cold water.** The following items are to be supplied cold, potable water from the main distribution system, required flow rates are given in brackets:

a. Toilets (0.13 l/s)

b. Kitchen sink (0.3 l/s)

c. Bathroom sink (0.15 l/s)

d. Showers (0.2 l/s)

e. Hot water storage cylinder (0.3 l/s)

f. Washing machine (0.2 l/s)

104. **Supply Pressure.** The pressure reducing valve for the main feed is to be set to 15 metres head (mhd) for the 2 and 4 bedroom houses or 10 mhd for the 3 bedroom house. It is to be noted that this may change when the procurement of the hot water cylinder is carried out. Because of this the pressure reduction valve is to be variable.

Hot Water Supply and Distribution

105. The hot water system is a closed system which is heated by solar thermal heating and an immersion heater. Both are to have heating elements contained within the hot water cylinder.

106. **Pump.** The hot water distribution network is to be supplied as a minimum by a pump rated as follows:

a. 15mhd and a flow rate of 0.85 l/s for the 2 bedroom house.

b. 15mhd and a flow rate of 1 l/s for the 3 bedroom house.

c. 15mhd and a flow rate of 1.2 l/s for the 4 bedroom house.

107. **Pump control.** The pump is to have an integral pressure sensor that will control the running of the pump when the pressure in the line drops at least 1.5 mhd from the working pressure.

108. **Supplied from hot water.** The following items are to be supplied hot water from the hot water cylinder, required flow rates are given in brackets:

a. Kitchen sink (0.3 l/s)

b. Bathroom sink (0.15 l/s)

c. Showers (0.2 l/s)

d. Washing machine (0.2 l/s)

109. **Thermostatic mixing valves.** Wherever there is a hot water distribution point, with the exception of the washing machine connection point, there is to be a thermostatic mixing valve. The mixing valve is be able to supply water at 40°C and work on the stated flow rates between 5-15mhd.

110. **Hot water storage cylinder.** The hot water storage cylinders are to be a minimum of the following sizes:

a. 2 bedroom house – 120 litre, 32 US gallons.

b. 3 bedroom house – 200 litre, 53 US gallons.

c. 4 bedroom house – 240 litre, 64 US gallons.

111. **Temperature and Pressure Relief Valve (TPRV)**. A temperature and pressure relief valve is to be fitted to the hot water storage cylinder with operating parameters of 80°C (176°F) and pressure of 3 bar.

112. **Discharge metal pipe and tundish**. A discharge metal pipe with a maximum length of 600 mm (24”) is to connect from the TPRV in calorifier to the tundish as shown in the drawings. The discharge pipe from the tundish outlet is to have a vertical fall of at least 300 mm (12”) and continuous fall of 1:200 thereafter prior to running outside the building. The discharge pipe terminal is to be secured in the wall using a telescopic sleeve surrounded by heat expansion foam as shown in the drawings.

113. **Immersion heater.** The hot water storage cylinder is to have electric immersion heater of at least 3.5 kW as a backup. The electrical immersion heater element is to have an adjustable integral thermostatic control.

114. **Pressure vessel.** The hot water distribution system is to be integrated with pressure vessels of the following sizes:

a. 2 bedroom house – 13 litre, 3.4 US gallons.

b. 3 bedroom house – 16 litre, 4.2 US gallons.

c. 4 bedroom house – 18 litre, 4.8 US gallons.

Solar Thermal Hot Water System

115. **General.** The solar thermal hot water system is an indirect drain back type with water as heat transfer fluid and electric backup. The hot water storage cylinder calorifier is to be floor mounted in the utility room and the solar collector mounted on the roof.

116. **Orientation.** Building orientation is to be considered prior to construction and the location of the solar panel should be identified so that the primary loop will be as short as possible. A typical layout of solar hot water system is in the drawing pack. The roof mounted collector panels shall be located to ensure optimum solar gain, preferably on the most southerly face. The optimum angle for installation is 17° to the horizontal. Siting shall also consider potential shading from the surrounding buildings and trees and should be avoided where possible.

117. **Calorifier.** If solar water heating is to be used the hot water cylinder will require to be upsized from the sizes given in paragraph 111. The below sizes of hot water cylinder are to be used in conjunction with the solar water heating system:

a. 2 bedroom house – 139 litre, 37 US gallons.

b. 3 bedroom house – 225 litre, 60 US gallons.

c. 4 bedroom house – 285 litre, 75 US gallons.

118. **Primary circuit.** The primary circuit length is to be minimised in order to reduce heat loss from the pipework. The primary circuit components and specifications are as follows:

a. **Flat panel solar collectors.** Flat panel solar collectors are to be certified to BS EN 12975 in respect of durability, reliability and performance. The collector sizes are as follows:

1) 2 bedroom house – 2.2m^2 (24 sq. ft).

2) 3 bedroom house – 3.4m^2 (37 sq. ft).

3) 4 bedroom house – 4m^2 (43 sq. ft).

b. **Drain back vessel.** Drain back vessel is to be of the same volume content as the primary circuit or larger. The vessel is to be insulated as a part of the circulatory system and it should be integrated with sight glass, pressure relief valve and filler cap. The drain back vessel sizes are as follows:

1) 2 bedroom house – 12 litre (3.2 US gallons).

2) 3 bedroom house – 15 litre (4 US gallons).

3) 4 bedroom house – 16 litre (4.2 US gallons).

c. **Heat exchanger.** The calorifier is to be integrated with a finned tube heat exchanger of the following sizes as a minimum:

1) 2 bedroom house – 0.88m^2 (9.5 sq. ft).

2) 3 bedroom house – 1.44m^2 (15.5 sq .ft).

3) 4 bedroom house – 1.6m^2 (17 sq. ft).

d. **Circulating pump.** The primary loop circulation pumps are the following sizes:

1) 10m (33 feet) circuit – 1.2 litre/minute (0.32 US gallons/minute) at 41.6 mbar (0.6 psi).

2) 66 ft (20m) circuit – 0.32 US gallons/minute (1.2 litre/minute) at 0.5psi (36.5 mbar).

119. **System control.** The solar differential controller is to be installed in order to turn the solar system circulation on and off via pump controls and the temperature sensors in the solar collector and the hot water storage tank.

120. **Pipework**. Copper pipe to BS EN 1057 or equivalent is to be used. As dictated by the location of the solar collectors on the roof, 15mm (1/2") diameter copper pipe is to be installed where the primary circuit is up to 10m (33 ft). Where the primary circuit is 10-20m (33-66 ft), 22mm (1") copper pipe is to be installed.

a. **Pipework mechanical properties**. A minimum allowance of 3 mm per metre (0.036'' per feet) is to be allowed for expansion near the collector.

b. **Pipe joints.** Compression fast coupling joints are to be used which are capable of withstanding 10 bar pressure and temperature of 180°C (356°F).

c. **Pipe support.** Pipe support and fixings are to be in accordance with BS EN 806 and BS 8558. Pipe fixings that clamp over the pipe insulation are to be used to reduce the heat loss. Maximum spacing for support for fixing is to be no more than 1.8m (6ft) in horizontal and 2.4m (8ft) in vertical runs.

121. **Insulation.** All the components are to be insulated in accordance with BS 5970: Code of Practice for Thermal Insulation of Pipes and Equipment. The storage vessel is to have insulation thickness of 50mm (2") and the primary loop copper pipe is to have insulation thickness of 31mm (1.2") with a minimum thermal conductivity of 0.04 w/mk.

122. **Heat transfer fluid (HTF).** Water with corrosion inhibitor is to be used as a heat transfer fluid.

123. **Installation and commissioning.** The solar hot water system is to be installed and commissioned by a competent person in accordance with the manufacturer's instructions and they are to comply with BS 5918:2015 Solar Heating for Hot Water – Code of practice for design and installation.

Gas Storage and Distribution

124. **General.** The gas storage consists of a 1450mm x 575mm concrete pad. This will house 2 full size gas storage bottles. The installation is to be surrounded by a metal cage to prevent theft and hurricane damage to the bottles.

125. **Connections.** There is to be one connection to the gas distribution pipe from the bottles. When one bottle has depleted the user will have to manually switch the bottles over. The connection for the gas bottles is to be a USA/Canadian (5/8" – 18 UNF INT CGA 180).

126. The gas bottle connection is to then supply a regulating valve and subsequently an isolating valve before it enters the house. A second isolating valve is to be positioned between the wall and the cooker.

127. **Pipework.** The pipework for the gas system is to be 12mm copper pipework from the external isolating valve until the connection to the cooker. This is to be in accordance with BS 5482-1.

128. **Positioning of pipework.** The copper pipe work is to be fixed to the wall using the following spacing between fixings:

a. Horizontal runs are to have a space of no more than 1.8m (6'1") between fixing points.

b. Vertical runs are to have a space of no more than 2.4m (8'2") between fixing points

c. Areas where there is a physical load on the pipe work, for example a valve which can be operated, are to have fixing points to the wall either side of the fitting.

129. Pipes are to be supported using saddle clips, fixed to the wall using 2 No 1½" countersunk screws screwed into a suitable wall plug.
130. The gas pipework is to be labelled GAS to prevent confusion with water distribution pipework.

Rainwater Harvesting

131. **Guttering.** Unless otherwise stated all the pipework and guttering for the rainwater harvesting is to be polyvinylchloride (PVC) pipes.

132. **Gutter fixings.** The gutter is to be fixed to the fascia using gutter brackets spaced at intervals of a maximum of 1m. The downpipe is to be fixed to the wall using downpipe clips spaced at each connection of pipework or at an interval of a 2m maximum.

133. **Rainwater tank.** The rainwater harvesting is to provide water suitable to flush toilets and to keep a reservoir of such water. Because of this the rainwater harvesting on 2, 3 and 4 bedroom houses are all to have a $1m^3$ main tank as a minimum. The tank is to be mounted outside at a height of 1.2m on a blockwork plinth. The tank is to have a point of access for cleaning.

134. **First flush tank.** The first flushing tanks are to have access and an ability to drain and remove the tank for cleaning. The first flush tanks are as follows:

a. 2 Bedroom house – 90 litres.

b. 3 Bedroom house – 90 litres.

c. 4 Bedroom house – 100 litres.

135. **First flush pipework.** The guttering that is used for the first flush is to be as follows:

a. 2 Bedroom house – 63mm (2 ½") diameter.

b. 3 Bedroom house – 63mm (2 ½") diameter.

c. 4 Bedroom house – 63mm (2 ½") diameter.

136. **Pipework to toilets.** The pipework that leaves the rainwater harvesting tank and feeds the toilets is to be 12mm rubber pipe. This is to be installed on the external of the building and is to be fixed using saddle clips with a minimum fall of 1:50.

137. **Connection to the toilets.** The rainwater feed is the primary flushing medium for the toilets and directly fills the cisterns from the rainwater harvesting tank. The feed from the rainwater harvesting tank is to have an isolation valve and an in line non-return valve fitted to

prevent the main feed from the toilet filling the rainwater tank. The mains cold water supply to the cistern is to have a non return valve fitted to prevent contamination of the cold water system with rainwater.

Extraction Fans

138. There are a number of extraction fans throughout the houses, these are to remove air from the building and exhaust it externally.

139. **Kitchens.** The kitchens in all the houses are to have wall mounted extraction fans which can provide a minimum of 0.06 m^3/s or 60 l/s.

140. **Shower Rooms.** The shower rooms in all the houses are to have wall mounted extraction fans which can provide a minimum of 0.015 m^3/s or 54 l/s.

141. **3 Bed Toilet.** The toilet in the 3 bed house is to have a wall mounted extraction fan which can provide a minimum of 0.011 m^3/s or 11.5 l/s.

142. **4 Bed En-suite.** The en-suite in the 4 bed house is to have a wall mounted extraction fan which can provide a minimum of 0.015 m^3/s or 54 l/s.

Drainage

143. **Drainage dimensions.** The drainage is either 100mm diameter for toilets or 32mm (1 ¼") diameter for the other appliances. Where possible the drainage is to converge into a single stub stack to supply to the underground drain. The toilets and the kitchen sink have singular points of entry into the underground drain.

144. **Traps.** Every point of discharge from an appliance is to have a trap, this is either a 100mm trap (U bend) for the toilets or a 38mm (1 1/2") trap for other appliance located at the discharge point.

145. **Falls.** Every horizontal run of branch discharge pipework is to have a fall of 18-90mm ($^{11}/_{16}$ – 3 ½") per metre to enable flow of the waste. 100mm (4") Foul water drainage pipework is to have a fall of 12.5 – 25mm ($^{1}/_{2}$ – 1") per metre.

146. **Drainage fixings.** The drainage pipework is to be fixed to the wall using pipe clips relative to the pipe size at spacings of 1m maximum on horizontal pipe runs and at 2m maximum on vertical pipe runs.

147. **Testing and commissioning of mechanical installations**. All pipework is to be tested and inspected in accordance with BS EN 806 and BS 8558. All distribution pipework is to be flushed through with fresh water and then pressure tested to a minimum of 1.5 times working pressure. On completion of distribution pipework the pumps are to be started and observed for leaks. All sewerage pipework is to be plugged and filled with water for a period of 24 hours to monitor levels.

FINISHING

142. **Render.** All external masonry walls shall be rendered, which shall be completed in two 10 mm layers, the base layer is to be a 1:4 cement / sharp sand mix to the prepared masonry surface. The final coat is to be a 1:5 cement / sharp sand mix. A splatter-dash preparation coat of liquid 1:2 cement sand grout should be applied to the surface prior to application of the base coat. The final coating shall then be wood float finished and steel float (internal surfaces only) with the trueness of the surface checked with a straight edge. The tolerance for finish is max ± 3 mm over 1 m run.

143. **Plasterboard**. All internal walls are to be covered with 12.5mm (½") thick, 2400 x 1200mm (94 ½ x 47 ¼") moisture resistant plasterboard fixed drywall dot and dab adhesive. All surfaces should be free from debris, porosity should be satisfied with water prior to the application of adhesive. All dabs should be in a regular pattern in accordance with BS 8212:1988 with a continuous band of adhesive placed at skirting level and around plug outlets/ switches. Plasterboard fixed to concrete, masonry and timber stud walls are to be sealed with tape and finished with a 2mm ($^{1}/_{16}$") skim coat of wet plaster until a surface finish accuracy of 5mm (1/4") is achieved. With the exception of areas which are to be tiled, plasterboard is to be finished with a primer coat and two finish coats of water based emulsion.

144. **Skirting**. A moisture resistant chamfered timber skirting is to be fixed to the base of all plasterboard walls (Masonry and timber stud walls). All skirting is to have a section size of 15 x 90mm ($^{9}/_{16}$ x 3 $^{9}/_{16}$"). All skirting is to be fixed to the wall with a suitable adhesive and nailed at 300mm (11 $^{13}/_{16}$") centres with 1.5 x 55mm ($^{1}/_{16}$ x 2 $^{3}/_{16}$") masonry screws/lost head nails for masonry/timber respectively.

145. **Painting general**. All paints used are to be premium paints from approved manufacturers. All surfaces are to be inspected by an appropriate person prior to painting to ensure they are clear of debris and dust. Additional coats of paint to that which is stated are to be applied if necessary at no extra cost to achieve the required film thickness and satisfactory opacity. Each coat of paint shall be evenly worked out and allowed to dry according to the manufactures recommendations before subsequent coats are applied.

146. **Painting - Plasterboard**. Internal plasterboard walls (except in tiled areas) are to be sanded down prior to paintwork to ensure they are free from debris and dust. Drop sheets should be used to protect floors or appliances. All door furniture, switch plates, light fittings and all other fixtures and fittings are to be removed before painting and re-fixed on completion. Walls are to be finished with a primer coat and two coats of a water based emulsion paint of a colour to be confirmed by the CR. In the kitchen and bathroom a water based kitchen and bathroom anti-bacterial paint is to be used for its waterproof properties.

147. **Painting - Internal roof timbers**. All roof timbers are to be painted with an internal white gloss paint to reduce the effect of water vapour on the roof structure. Timbers are to be finished with a primer coat and two coats of paint.

148. **Painting - Masonry**. All external rendered walls will be painted with two coats of quality masonry vinyl paint. The colour of paint shall be agreed with the CR, with a sample provided for approval prior to purchase. Masonry / render is to be fully dried before any paint is applied. Each coat of paint is to be fully dried before the application of further coats.

149. **Tiling**. Tiling is to be used as the flooring throughout the house as well as wall tiles used in the shower, and for kitchen and WC basin splashbacks. Samples of tiles for use in all below areas are to be submitted to the CR for approval before purchase. The following types of tiles are to be installed:

a. **Sequence**. All wall tiles are to be fixed before floor tiles.

b. **Wall tiles – bathroom and kitchen**. Where wall tiles are fitted to plasterboard, the loading should not exceed 32kg/m². Wall tiles shall be ceramic and have a smooth finish and be grouted with a waterproof and mould resistant grout suitable for use in wet areas.

c. **Floor tiles – general**. Floor tiles for use throughout the building are to be ceramic and suitable for use as floor tiles. Adhesive used is to be suitable to local building regulations and manufacturers specifications and instructions should be followed.

d. **Floor tiles – bathroom**. Floor tiles for use in the bathroom are to be ceramic and of a non slip type suitable for use in wet areas. Adhesive used is to be suitable to local building regulations and manufacturers specifications and instructions should be followed. Grout shall be waterproof and mould resistant suitable for use in wet areas.

e. **External floor tiles – veranda**. Floor tiles for use on the veranda shall be non slip and durable hard wearing tiles suitable for use in outdoor environments. Adhesive used is to be suitable to local building regulations and manufacturers specifications and instructions should be followed. A fall of 1:100 minimum shall be allowed towards the outer edge of the veranda for run off of rain water.

f. **Sealant requirement**. A waterproof, flexible, mould resistant sealant which is compatible with host material.

g. **Setting out**. All tiles are to give uniform joint widths within the following limits:

(1) **Internal ceramic tiling**: 1.5 to 3mm ($^1/_{16}$ to $^1/_8$").

(2) **Floor tiles**: 3 – 5mm ($^1/_8$ to $^3/_{16}$").

150. **Kitchen joinery and fixtures**. All fibreboard is to be a moisture resistant Medium Density Fibreboard (MDF): Designated from the manufactures as having improved moisture resistance and marked as such. All MDF should be overlaid both sides with a low pressure melamine/laminate. The following grades and thicknesses should be adhered to:

a. **Grades**:

(1) Horizontal General Purpose (HGP) plastic laminate for use on kitchen work tops.

(2) Vertical General Standard (VGS) plastic laminate for kitchen front panels.

(3) Acrylonitrile Butadiene Styrene (ABS) plastic laminate for edges.

b. **Thicknesses**:

(1) Horizontal surfaces - 1.2 mm.

(2) Vertical surfaces – 0.8mm.

(3) Post formed laminate – 0.8mm.

(4) Edge strips – 2mm.

(5) Vertical fixing to studs/masonry – 3.0mm.

151. **Installation**. All components are to be constructed square and plumb. All fixtures and adhesives used should not damage or discolour any timbers or sheets. No fixings should be visible externally and should only be carried out inside cupboards and drawer units. Fixtures used inside open units should be covered with a form of capping. All units should be fixed to walls and floors at no more that 600mm (23 $^5/_8$") C/C. Masonry anchors should be used when fixing units to masonry walls.

152. **Carcasses, drawer fronts, shelves and doors**. Each should have a minimum thickness of 16mm ($^5/_8$"). Hinges are to be concealed internally and should have the following features:

a. Adjustable height, side and depth location of doors.

b. Self closing action.

c. Holding open action.

d. Nickel plated.

153. **Bench tops**. All bench tops should have a minimum thickness of 32mm (1 ¼"). All worktops are to be sealed at the edges with a moisture resistant sealant. Bench tops should have a height of 870mm (34 ¼") from finished floor level to the underside of bench top. Wall areas between the top of the bench and the bottom of any cupboard should be tiled using a ceramic, smooth finish tile and be grouted with a waterproof and mould resistant grout suitable for use in wet areas.

154. **Kitchen furniture**. The follow gaps in kitchen units are to be adhered to:

a. **Oven**. A 700mm (27 $^{9}/_{16}$") gap should be left open to allow for the installation of an oven and worktops should be terminated and ends sealed.

b. **Fridge and washing machine**. 700mm (27 $^{9}/_{6}$") gaps should be left for the installation of a fridge and washing machine. All openings should be positioned where the supplied plumbing and electrical points are located.

155. **Client approval**. The kitchen layout and selection of units are to be approved by the CR prior to purchase and installation.

SCHEDULED INSPECTIONS

156. Throughout the project there are a number of mandatory scheduled inspections at which the Contractor must notify the CR 48hrs in advance to arrange an inspection. Works are not to continue past the inspection stage until the inspection has been satisfactorily completed and the CR gives approval for the next stage of works to continue. The scheduled inspections are shown on the Outline Project Programme at Annex E and are listed below:

a. Setting Out – of concrete pads.

b. Foundation formwork and reinforcement 1.

c. Concrete pour – sample cubes to be taken.

d. Foundation formwork and reinforcement 2.

e. External wall setting out.

f. Mid level ringbeam formwork and reinforcement.

g. High level ringbeam formwork and reinforcement.

h. Roof superstructure.

i. First fix electrical installation.

j. First fix mechanical installation.

k. Pre handover inspection. A minimum of 1 week before final handover.

l. Handover.

HANDOVER

157. At the completion of the project, the building is to be formally handed over to the CR. The process for the handover shall be determined upon the letting of the contract by the Client.

		Qty	Unit	Rate	$	c
	D20: EXCAVATING AND FILLING					
	Excavating					
A	maximum depth not exceeding 1.00 m	4	m3			
	Earthwork support					
	Earthwork support; left in					
B	maximum depth not exceeding 1m; distance between opposing faces 2.00 - 4.00m	24	m2			
	Disposal					
	Disposal of excavated material					
C	depositing on site in temporary spoil heaps located at contractor's discretion	4	m3			
	Breaking out existing materials					
D	Rock	1	m3			
	Filling to excavations					
	Average thickness >0.25m					
E	Obtained from on site spoil heaps	4	m3			
	Surface Treatments					
F	Applying herbicides	40	m2			
	IN - SITU CONCRETE/ LARGE PRECAST CONCRETE					
	E10: IN - SITU CONCRETE					
	Slabs					
G	thickness 150-450	21	m3			
				To Collection		

		Qty	Unit	Rate	$	c
	E30: REINFORCEMENT FOR IN-SITU CONCRETE					
	Reinforcement fabric					
	Reference A393. 3.02 kg/m²; 250 side laps; 250 end laps					
A	generally in floor slabs	175	m2			
			To Collection			

	Qty	Unit	Rate	$	c
Collection From					
1/1					
1/2					
1 - SUBSTRUCTURE Carried to Summary					

		Qty	Unit	Rate	$	c
	IN - SITU CONCRETE/ LARGE PRECAST CONCRETE					
	E10: IN - SITU CONCRETE					
	Reinforced in-situ concrete; B.S.5328 designed mix C30 20 aggregate minimum cement content 290 kg/m3; vibrated					
	Slabs					
A	thickness not exceeding 150 over closets	1	m3			
	Beams					
B	isolated	3	m3			
	Columns					
C	200 x 200 generally	2	m3			
	Lintels					
D	200 x 150 generally	1	m3			
	E20: FORMWORK FOR IN SITU CONCRETE					
	Formwork and basic finish					
	Sides of ground beams and edges of beds; plain vertical					
E	height not exceeding 250	39	m			
	Edges of suspended slabs; plain vertical					
F	height not exceeding 250	7	m			
	Soffits of slabs; horizontal					
G	slab thickness not exceeding 200; height to soffit not exceeding 1.50m	2	m2			
	Beams; isolated					
H	regular shaped; rectangular; height not exceeding 250m;	16	m2			
				To Collection		

		Qty	Unit	Rate	$	c
	Columns; attached to walls					
A	regular shaped; rectangular; 23nr	46	m2			
	Sides of lintels					
B	regular shaped; rectangular; height not exceeding 250m;	6	m2			
	Soffits of lintels					
C	200 x 150; height to soffit not exceeding 1.50m	1	m2			
	E30: REINFORCEMENT FOR IN-SITU CONCRETE					
	Reinforcement bars; B.S.4449 hot rolled plain round mild steel					
	Straight					
D	10mm diameter vertically in blockwalls	169	lb			
E	12mm diameter in lintels	42	lb			
F	10mm diameter in slabs	333	lb			
G	10mm diameter in columns	327	lb			
	Bent					
H	10mm diameter stirrups in lintels	1	lb			
J	10mm diameter stirrups in slabs	359	lb			
K	6mm diameter stirrups in columns	121	lb			
	Reinforcement bars; B.S.4449 hot rolled deformed high yield steel					
	Straight					
L	12mm diameter in beams	210	lb			
	Bent					
M	10mm diameter in corner of columns	449	lb			
				To Collection		

		Qty	Unit	Rate	$	c
	Bent					
A	12mm diameter in corner of beams	86	lb			
	Reinforcement fabric					
	Reference A393 3.02 kg/m²; 250 side laps; 250 end laps					
B	generally over closets	4	m2			
	MASONRY					
	F10: BRICK/BLOCK WALLING					
	Concrete blocks; BS 6073; 7N/mm2 crushing strength; 440 x 215; solid; in cement-lime mortar (1:1:6)					
	Walls					
C	150 thick	45	m2			
D	200 thick	59	m2			
	F30: ACCESSORIES/SUNDRY ITEMS FOR BRICK/BLOCK/STONE WALLING					
	Joint reinforcement in walls					
	0.4mm Hy-rib ladder reinforcement					
E	200mm wide	203	m			
F	150 mm wide	109	m			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From					
1/4					
1/5					
1/6					
2A - FRAME Carried to Summary					

		Qty	Unit	Rate	$	c
	STRUCTURAL/CARCASSING METAL/TIMBER					
	G20: CARPENTRY/TIMBER FRAMING/FIRST FIXING					
	Softwood sawn					
	Trusses; drawing #C/024; gang nailed joints; including webs gussets etc					
A	duo-pitch type; 28234mm overall; fixing with truss clips to wall plate and truss using ring nails	5	Nr			
	Trusses; drawing #C/025; gang nailed joints; including webs gussets etc					
B	duo-pitch type; 32914mm overall; fixing with truss clips to wall plate and truss using ring nails	2	Nr			
	Trusses; drawing #C/026; gang nailed joints; including webs gussets etc					
C	duo-pitch type;33676mm overall; fixing with truss clips to wall plate and truss using ring nails	4	Nr			
	Plates					
D	100 x 50mm ; fixing by bolting to ring beam	51	m			
	Roof members; pitched					
E	100 x 150mm; timber hip rafter nailed to doubled up truss and attached to wall plate with truss clip	26	m			
F	100 x 150mm; infill jack rafter and attached on top of truss and to wall plate to same level at hip rafter extending beyond truss by 100mm	31	m			
G	22 x 89mm longitudinal bracing; nailed twice to each truss along the roof; placed at every node point	11	m			
H	51 x 127mm purlins; fixing with screws	280	m			
J	100 x 150mm; infill jack rafter and attached to hip rafter and to wall plate	15	m			
				To Collection		

		Qty	Unit	Rate	$	c
	Fascia and barge boards					
A	width exceeding 300; 15mm thick x 300mm wide	44	m			
	Soffits					
B	width exceeding 300;15mm thick x 130mm wide nailed to the underside of every truss	44	m			
	Steel; plated					
	Straps; Drawing# C/027					
C	Bend 51mm x Tail 180mm xLength 1200mm; fixed to every truss rafter nailed one end; plugged and screwed to blockwall	22	Nr			
	Nail plates; Drawing #C/024					
D	600 x 150 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
E	445 x 450 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
F	531 x 453 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
G	150 x 339 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
H	260 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
J	440 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
	Nail plates; Drawing #C/025					
K	440 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
L	260 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Nail plates; Drawing #C/025					
A	600 x 150 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
B	500 x 425 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
C	375 x 414 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
D	532 x 350 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
E	453 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
	Nail plates; Drawing #C/026					
F	532 x 350 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
G	375 x 414 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
H	500 x 425 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
J	600 x 150 x 1.5mm thick fixed to either side of truss with nails	1	Nr			
K	440 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
L	260 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
M	453 x 150 x 1.5mm thick fixed to either side of truss with nails	2	Nr			
	Multi-Purpose Angle Plate					
N	Connecting timber joist to timber purlins; fixed using nails	260	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	CLADDING/COVERING					
	H74: ZINC SHEET COVERINGS/FLASHINGS					
	Galvanize sheet					
	Flashings					
A	0.7mm gauge; 150 lapped joints; fixed every 200mm using nails	26	m			
	H75: STAINLESS STEEL SHEET COVERINGS/ FLASHINGS					
	Corrugated iron sheet 990 x 5200mm					
	0.7mm gauge roof coverings; fixing to plywood sarking with galvanised spring head nails					
B	3"pitch	129	m2			
	LININGS/SHEATHING/DRY PARTITIONING					
	K11: RIGID SHEET FLOORING/SHEATHING/ LININGS/CASINGS					
	Plywood Sarking fixed to every purlins					
	1200 x 2440 x 12mm thick to roofs					
C	width exceeding 300	129	m2			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From					
1/8					
1/9					
1/10					
1/11					
2C - ROOF Carried to Summary					

		Qty	Unit	Rate	$	c
	WINDOWS/DOORS/STAIRS					
	L11: METAL WINDOWS/ROOFLIGHTS/SCREENS/ LOUVRES					
	Aluminum Windows					
A	1300mm x 1230mm	5	Nr			
B	1000mm x 1230mm	2	Nr			
	L21: METAL DOORS/SHUTTERS/HATCHES					
	Aluminum Doors					
	To include 1/2" Security with 3" Aluminum Blades with all ironmongomery					
C	930mm x 2095mm	3	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Collection From 1/13					
2F -	WINDOWS & EXTERNAL DOORS Carried to Summary					

		Qty	Unit	Rate	$	c
	GROUNDWORK					
	LININGS/SHEATHING/DRY PARTITIONING					
	K20: TIMBER BOARD FLOORING/SHEATHING/ LININGS/CASINGS					
	Softwood wrot					
	Skirting boarding to walls ; 15mm thick 90mmwide boards;					
A	width exceeding 300; fixing to walls	75	m			
	SURFACE FINISHES					
	M60: PAINTING/CLEAR FINISHING					
	One coat primerer two full coats emulsion paint					
	Skirting Boards					
B	girth exceeding 300	7	m2			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/15					
2G - INTERNAL WALLS & PARTITIONS Carried to Summary					

		Qty	Unit	Rate	$	c
	WINDOWS/DOORS/STAIRS					
	L20: TIMBER DOORS/SHUTTERS/HATCHES					
	Doors in softwood					
	Doors;					
A	994mm x 2095mm	4	Nr			
	Sliding/folding partitions					
	Bifold door with fixed louvre insert					
B	1395mm x 2032mm	1	Nr			
C	1379mm x 2032mm	1	Nr			
D	1393mm x 2032mm	1	Nr			
E	1409mm x 2032mm	1	Nr			
	Door frames in softwood					
	4 nr identical sets					
F	51mm x 152mm jambs	17	m			
G	51mm x 152mm heads	4	m			
H	13mm x 25mm stops	17	m			
J	13mm x 64mm architraves	34	m			
	SURFACE FINISHES					
	M60: PAINTING/CLEAR FINISHING					
	One coat primer one coat full gloss finish					
	Wood general surfaces					
K	girth not exceeding 300 to door frames, stops and architraves	6	m2			
				To Collection		

		Qty	Unit	Rate	$	c
	Wood general surfaces					
A	girth exceeding 300 to all timber doors, including bifold doors	39	m2			
			To Collection			

		Qty	Unit	Rate	$	c
	Collection From					
	1/17					
	1/18					
2H	- INTERNAL DOORS & SCREENS Carried to Summary					

		Qty	Unit	Rate	$	c
	SURFACE FINISHES					
	M20: PLASTERED/RENDERED/ROUGHCAST COATINGS					
	Mortar cement and sand (1:4); steel trowelled					
	work to external walls on brickwork or blockwork base					
A	width exceeding 300	102	m2			
	Mortar cement and sand (1:5); steel trowelled					
	work to walls on cement and sand base					
B	width exceeding 300	102	m2			
	Mortar cement and sand (1:3); steel trowelled					
	work to internal 152mm walls on brickwork or blockwork base					
C	width exceeding 300	185	m2			
	M60: PAINTING/CLEAR FINISHING					
	Two coats emulsion paint					
	One coat primer two full coats emulsion paint					
	Cement rendered general surfaces					
D	girth exceeding 300	288	m2			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/20					
3A - WALL FINISHES Carried to Summary					

		Qty	Unit	Rate	$	c
	SURFACE FINISHES					
	M10: SAND CEMENT/CONCRETE/GRANOLITHIC SCREEDS/FLOORING					
	Mortar cement and sand (1:3)					
	work to floors on concrete base; one coat; screeded					
A	level and to falls only not exceeding 15 degrees from horizontal	85	m2			
	M40: STONE/CONCRETE/QUARRY/CERAMIC TILING/MOSAIC					
	Ceramic tiles B.S.6431 glazed white; 2 joints symmetrical layout; fixing with adhesive grouting with white cement grout					
	150mm x 150mm units to bathroom walls on sand and cement base					
B	plain width exceeding 300		Item			
	150mm x 150mm units to kitchen walls on sand and cement base					
C	plain width exceeding 300		Item			
	300mm x 300mm non skid tiles to floors on concrete base; level or to falls only not exceeding 15 degrees from horizontal					
D	plain	13	m2			
	300mm x 300mm units to floors on cement and sand base; level to falls only not exceeding 15 degrees from horizontal					
E	plain	72	m2			
			To Collection			

		Qty	Unit	Rate	$	c
	Mosaic tiles glazed white; 2 joints symmetrical layout; fixing with Bal Adhesives Ltd. CTF2 adhesive grouting with Bal-grout 50mm x 50mm units to floors on concrete base; level or to falls only not exceeding 15 degrees from horizontal					
A	plain		Item			
			To Collection			

	Qty	Unit	Rate	$	c
Collection From					
1/22					
1/23					
3B - FLOOR FINISHES Carried to Summary					

		Qty	Unit	Rate	$	c
	SURFACE FINISHES					
	M60: PAINTING/CLEAR FINISHING					
	One coat primer two full coats emulsion paint					
	Soft building board ceilings and beams 3.50 - 5.00m above floor					
A	girth exceeding 300 to fascia and soffit board	19	m2			
B	girth exceeding 300 to hip rafters	10	m2			
C	girth exceeding 300 to purlins	36	m2			
D	girth exceeding 300 jack rafter	18	m2			
E	girth exceeding 300 to all truss rafters	103	m2			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/25					
3C - CEILING FINISHES Carried to Summary					

		Qty	Unit	Rate	$	c
	FURNITURE/EQUIPMENT					
	N11: DOMESTIC KITCHEN FITTINGS					
	Kitchen units					
	Wall units					
A	2400mm long x 305mm wide x 457mm high; complete with all necessary hardware; fixing to masonry with concrete nails		Item			
	Floor units					
B	2620mm long x 600mm wide x 914mm high L-shaped with hinges for drawers and doors with pull knobs respectively, with 25mm thick post form with bull nosed edge counter top to surfaces to include for the fitting of 1 Nr single bowl kitchen sink and integral backsplash with bull nosed edge; complete with all necessary hardware; fixing to masonry with concrete nails		Item			
C	266mm x 600mm wide x 914mm high L-shaped with hinges for drawers and doors with pull knobs respectively, with 25mm thick post form with bull nosed edge counter top to surfaces; complete with all necessary hardware; fixing to masonry with concrete nails		Item			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/27					
4A - FITTINGS & FURNISHINGS Carried to Summary					

		Qty	Unit	Rate	$	c
	FURNITURE/EQUIPMENT					
	N13: SANITARY APPLIANCES/FITTINGS					
	Appliances; British Standard fittings					
	Sink units; single bowel with single drainer and back ledge; stainless steel B.S.1244; 38 waste, plug and chain to B.S.3380 with combined overflow; pair 13 pillar taps to B.S.1010					
A	fixing on base unit with metal clips	1	Nr			
	Wash basins; white vitreous china; B.S.5506; 32 slotted waste chain stay and plug to B.S.3380; painted cantilever brackets; pair 13 pillar taps to B.S.1010					
B	fixing brackets to masonry with screws; sealing at back with mastic sealant	1	Nr			
	Low level W.C. suites; white vitreous china pan to B.S.5503; 9 litre white vitreous china cistern with valveless fittings and plastics flush bend to B.S.1125; 13 diaphragm type (brass body) high pressure ball valve to B.S 1212 with 127 plastics float to B.S.2456; plastics seat and cover to B.S.1254					
C	pan with S trap conversion bend to B.S.5627; fixing pan and cistern brackets to masonry with screws; bedding pan in mastic; jointing pan to drain with cement mortar (1:2) and gaskin joint	1	Nr			
	Shower Curtain Rod					
D	Surface mounted; plugged and screwed to wall; ceramic; in bathroom	1	Nr			
	Soap Dish Holder					
E	Surface mounted; plugged and screwed to wall; ceramic; in bathroom	1	Nr			
	Towel Rail					
F	Surface mounted; plugged and screwed to wall; ceramic; in bathroom	1	Nr			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/29					
5A - SANITARY APPLIANCES Carried to Summary					

		Qty	Unit	Rate	$	c
	DISPOSAL SYSTEMS					
	R10: RAINWATER PIPEWORK/GUTTERS					
	Rubber Pipe with all fittings and fixingd					
	Pipes; curved					
A	12mm fixed to masonry with saddle clips	10	m			
	uPVC heavy grade pipes and fittings B.S.4576 Part 1; Marley Extrusions Ltd; push fit joints; pipework and supports self coloured black					
	Pipes; straight; supports at average 2000mm centres					
B	63mm; Fixed to wallswith downpipe clips including all bends	4	m			
	Pipes; straight; supports at average 1000mm centres					
C	112mm; Fixed to timber fascia board with half round UPVC brackets	11	m			
D	extra; connections to plastics pipe socket; push fit joint	11	Nr			
	R11: FOUL DRAINAGE ABOVE GROUND					
	Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material by depositing on site in permanent spoil heaps not exceeding 150m distance					
	Commencing from existing ground level; filling in above 450mm thick beds and coverings with type 1 granular material up to formation level					
E	average depth 500 - 750		Item			
	Breaking out existing materials; extra over excavating trenches irrespective of depth					
F	rock		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	Disposal of water					
A	ground water		Item			
	Granular material type 1; to be obtained off site					
	Beds and Surrounds					
B	450 x 40 bed; 300 thick surround to 00 nominal size pipe		Item			
	uPVC pipes and fittings B.S 4660; ring seal joints					
	Pipework in trenches					
C	100mm nominal size		Item			
D	32mm nominal size		Item			
E	extra; junctions	6	Nr			
F	extra; bends	3	Nr			
	Pipework in chases					
G	32mm diameter nominal size		Item			
H	extra; bends	2	Nr			
	Pipework in in situ concrete					
J	32mm diameter nominal size		Item			
K	extra; bends	6	Nr			
	uPVC accessories					
	Traps					
L	38mm diameter nominal size, with 76mm seal including screwed joint to fitting and solvent well joint to uPVC pipe	3	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Testing and commissioning					
	R12: DRAINAGE BELOW GROUND					
	Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material off site					
	Commencing from existing ground level; filling in above 450mm thick beds and coverings with type 1 granular material up to formation level					
A	average depth 500 - 750		Item			
	Breaking out existing materials; extra over excavating trenches irrespective of depth					
B	rock		Item			
	Disposal of water					
C	ground water		Item			
	Granular material 6 - 12 nominal size to be obtained off site					
	Beds and Surrounds					
D	400 x 150 bed; 250 thick surround to nominal size pipe		Item			
	uPVC pipes and fittings B.S 4660; ring seal joints					
	Pipework in trenches					
E	12mm nominal size		Item			
F	15mm nominal size		Item			
G	16mm nominal size		Item			
H	22mm nominal size		Item			
J	28mm nominal size		Item			
			To Collection			

		Qty	Unit	Rate	$	c
	Various locations on site					
	Connecting new drain to existing manhole; taking off and replacing cover; holing brick side; breaking up benching inserting three quarter section clayware branch channel bend to discharge over main channel; making good all work disturbed; maintaining flow during alteration					
A	4nr diameter drains;600mm x 600mm manhole, 914mmdeep to invert		Item			
B	Testing and commissioning		Item			
	Mechanical and electrical services measurement					
	Y20 General pipeline equipment					
	Water tanks/cisterns					
	First Flush Tank					
C	90 litre (0.09m³)	1	nr			
	Storage tanks					
D	1000 litre (1m³) external storage tanks	1	nr			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From					
1/31					
1/32					
1/33					
1/34					
5C - DISPOSAL INSTALLATIONS Carried to Summary					

		Qty	Unit	Rate	$	c
	PIPED SUPPLY SYSTEMS					
	S10: COLD WATER					
	Copper pipes B.S.2871; copper fittings capillary B.S.864 Part 2					
	Pipes straight; in chases					
A	in standard plastics pipe:fixing to masonry with mortar		Item			
B	extra; connections to existing copper pipe end; capillary joint; 22mm -16mm copper reducer	1	Nr			
C	extra; connections to existing copper pipe end; capillary joint; 22mm -12mm copper reducer	1	Nr			
D	extra; connections to existing copper pipe end; capillary joint; 28mm -22mm copper reducer	1	Nr			
E	extra; connections to existing copper pipe end; capillary joint; 28mm -16mm copper reducer	2	Nr			
F	extra; connections to existing copper pipe end; capillary joint; 28mm -15mm copper reducer	1	Nr			
G	extra; connections to existing copper pipe end; capillary joint; 16mm -12mm copper reducer	2	Nr			
H	extra; connections to existing copper pipe end; capillary joint; 28mm -12mm copper reducer	1	Nr			
J	extra; fittings; two ends	5	Nr			
K	extra; fittings; three ends	6	Nr			
	Pipes; straight; in in-situ concrete					
L	in standard plastics pipe:fixing to masonry with mortar		Item			
M	extra; fittings; two ends	1	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Copper pipework ancillaries					
	Bib taps; B.S.1010 crutch head					
A	tail threaded externally	2	Nr			
	Mixer taps; B.S.1010 single outlet type combination tap assembly indexed cross tops					
B	one end threaded internally; one end threaded externally	3	Nr			
C	12mm diameter Isolating valves B.S. E.N.1074-2	4	Nr			
D	28mm diameter Isolating valves B.S. E.N.1074-2	2	Nr			
E	15mm diameter Isolating valves B.S. E.N.1074-2	1	Nr			
F	16mm diameter Isolating valves B.S. E.N.1074-2	2	Nr			
G	28mm Double Check Valves B.S. E.N. 1074-3	2	Nr			
	Control Valves B.S. E.N. 1074-5					
H	16mm diameter Pressure Reducing Valve	2	Nr			
	Cold water installation					
	Testing and commissioning					
J	water tightness and perfomance		Item			
	S11: HOT WATER					
	Copper pipes B.S.6700; copper fittings capillary B.S.864 Part 2					
	Pipes straight; in chases					
K	in standard plastics pipe:fixing to masonry with mortar		Item			
L	extra; connections to existing copper pipe end; capillary joint; 28mm -12mm copper reducer	1	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Pipes straight; in chases					
A	extra; connections to existing copper pipe end; capillary joint; 28mm -22mm copper reducer	1	Nr			
B	extra; connections to existing copper pipe end; capillary joint; 22mm -16mm copper reducer	1	Nr			
C	extra; connections to existing copper pipe end; capillary joint; 22mm -18mm copper reducer	1	Nr			
D	extra; connections to existing copper pipe end; capillary joint; 18mm -12mm copper reducer	1	Nr			
E	extra; connections to existing copper pipe end; capillary joint; 18mm -15mm copper reducer	1	Nr			
F	extra; fittings; two ends	7	Nr			
G	extra; fittings; three ends	3	Nr			
	Pipes; straight; in in-situ concrete					
H	in standard plastics pipe:fixing to masonry with mortar		Item			
J	extra; fittings; two ends	2	Nr			
	Copper pipework ancillaries					
	Bib taps; B.S.1010 crutch head					
K	tail threaded externally	1	Nr			
	Mixer taps; B.S.1010 single outlet type combination tap assembly indexed cross tops					
L	one end threaded internally; one end threaded externally	3	Nr			
M	12mm diameter Isolating valves B.S. E.N.1074-2	2	Nr			
N	15mm diameter Isolating valves B.S. E.N.1074-2	1	Nr			
P	16mm diameter Isolating valves B.S. E.N.1074-2	1	Nr			

To Collection

		Qty	Unit	Rate	$	c
A	28mm diameter Isolating valves B.S. E.N.1074-2	2	Nr			
	Single feed indirect hot water cylinders; copper cylinder B.S.1566 coil type primary heater class 110 with heat exchanger 0.88m²; immersion heater 3 kW 230/250 volts AC with combined thermostat and withdrawable element					
B	139 litres capacity; including pressure vessel and all fittings and fixtures	1	Nr			
	Hot water installation					
	Testing and commissioning					
C	water tightness and perfomance		Item			
	Mechanical and electrical services measurement					
	Y20 General pipeline equipment					
	Pumps					
	Circulating pumps					
D	10m circuit- 1.2 litre/minute at 41.6mbar as specified in B-19 in specifications	1	Nr			
E	20m circuit- 1.2 litre/minute at 36.5mbar as specified in B-19 in specifications	1	Nr			
			To Collection			

	Qty	Unit	Rate	$	c
Collection From					
1/36					
1/37					
1/38					
1/39					
5D - WATER INSTALLATIONS Carried to Summary					

		Qty	Unit	Rate	$	c
	PIPED SUPPLY SYSTEMS					
	S33: LIQUID PETROLEUM GAS					
	Copper pipes B.S.2871 Part 1 Table X; copper fittings capillary B.S.864 Part 2					
	Pipes straight					
A	12mm; supported with saddle clips; fixed to the wall with countersunk screws as per specifications page B-20		Item			
	Copper pipework ancillaries					
B	Isolating valves B.S. E.N.1074-2;	2	Nr			
	Control Valves B.S. E.N. 1074-5					
C	Regulating valve	1	Nr			
	MECHANICAL HEATING/COOLING/ REFRIGERATION SYSTEMS					
	T15: SOLAR COLLECTORS					
	Flat panel solar collector to be certified to BS EN 12975;					
D	To include drain back vessel as specified on B-18 in the specifications manual	1	Nr			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From 1/41					
5E - HEAT SOURCE Carried to Summary					

		Qty	Unit	Rate	$	c
	BUILDING FABRIC SUNDRIES					
	P30: TRENCHES/PIPEWAYS/PITS FOR BURIED ELECTRICAL SERVICES					
	Excavating trenches to receive services not exceeding 200 nominal size; disposing of surplus excavated material by spreading on site not exceeding 150m distance					
	Commencing from existing ground level					
A	average depth 762mm		Item			
	VENTILATION/AIR CONDITIONING SYSTEMS					
	U11: TOILET EXTRACT					
	230V extractor fan to comply with requirements of BS EN 60335-2-80:2003+A2:2009					
B	As specified on page B-13 in Specifications	1	Nr			
	U12: KITCHEN EXTRACT					
	230V extractor fan to comply with requirements of BS EN 60335-2-80:2003+A2:2009					
C	As specified on page B-13 in Specifications	1	Nr			
	ELECTRICAL SUPPLY/POWER/LIGHTING SYSTEMS					
	V21: GENERAL LIGHTING					
	Batten lamp holders					
	Straight pattern					
D	IP44 Wall mounted batten lamp holder	1	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Luminaires					
	Wall type					
A	Wall mounted lamp holder as indicated in specifications	10	Nr			
B	IP44 External wall mounted lamp holder	1	Nr			
	Fluorescent luminaires					
	Ceiling type					
C	IP44 1200mm 1 x 36w	2	Nr			
D	1200mm 1 x 36w	2	Nr			
	Accessories					
	Surface plate switches					
E	one way; single pole	1	Nr			
F	Two gang; two way; single pole	3	Nr			
G	Three gang; two way; single pole	1	Nr			
H	Two gang; intermediate; single pole	1	Nr			
	Flush isolating switches					
J	20amp; two pole 220V connected to under unit	1	Nr			
K	20amp;two pole 110V connected to under unit	1	Nr			
L	20amp;two pole connected to water heater	1	Nr			
M	32amp; two pole connected to 220/110V transformer	1	Nr			
	Surface unswitched socket outlets					
N	10 amp; Double gang;110V	1	Nr			
P	10 amp; Double gang;220V	1	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Surface switched socket outlets					
A	10 amp; Double gang; 110V	16	Nr			
B	10 amp; Double gang; 220V	16	Nr			
	Flush fused connection units					
C	PVC TV connection point	3	Nr			
D	3amp;two pole switched to water pump with outlet for flexible cord	1	Nr			
E	3amp;two pole switched to solar pump with outlet for flexible cord	1	Nr			
F	3amp; two pole switched to differential controller with outlet for flexible cord	1	Nr			
G	3amp; two pole switched with neon connected to cooker ignition circuit	1	Nr			
H	3amp; two pole switched connected to extractor fan	2	Nr			
	Surface telephone outlets					
J	single outlet	1	Nr			
	Accessories; MK Accent range; charcoal finish					
	Junction boxes					
K	for sockets and switches	55	Nr			
	Installation generally					
	Testing and commissioning in accordance with IEE Regulations 15th Edition; disconnecting equipment not subject to installation tests					
L	power installation		Item			
M	fire alarm installation		Item			
			To Collection			

		Qty	Unit	Rate	$	c
	V22: GENERAL LV POWER					
	PVC high impact trunking; clip-on covers; white					
	Surface trunking					
A	50 x 50; to masonry; to include 25mm cable capping	100	m			
	PVC insulated cables; single core; ref:6491X; stranded copper conductors; to BS 6004/6346					
	Drawn into conduits or ducts or laid or drawn into trunking					
B	1.5mm² flat twin and earth cable	200	m			
C	2.5mm² flat twin and earth cable	430	m			
D	4mm² flat twin and earth cable	15	m			
E	16mm² flat twin and earth cable	10	m			
	Laid in trenches					
F	35mm²; four core		Item			
	COMMUNICATIONS/SECURITY/CONTROL SYSTEMS					
	W50: FIRE DETECTION AND ALARM					
	Fire alarm sensor/sounder					
G	Connected to the local lighting circuit, fitted with individual battery	2	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Mechanical and electrical services measurement					
	Y71 LV switchgeaar and distribution boards					
	LV switchgear and distribution boards					
	Fused consumer units					
A	Split load; 13 way; non metal moulded housing complete with main RCD, MCBs and RCBOs	1	Nr			
	Transformers					
B	wall mounted 110v step down transformer; metal enclosure	1	Nr			
				To Collection		

		Qty	Unit	Rate	$	c
	Collection From					
	1/43					
	1/44					
	1/45					
	1/46					
	1/47					
	5H - ELECTRICAL INSTALLATIONS Carried to Summary					

		Qty	Unit	Rate	$	c
	GROUNDWORK					
	D20: EXCAVATING AND FILLING					
	Excavating					
	Top soil for preservation					
A	average 150 deep for water tank plinth	2	m2			
B	average 150 deeep for gas shed	1	m2			
	Disposal					
	Disposal of excavated material					
C	Off site; specified locations, to be decided by contractor for water tank plinth	1	m3			
D	off site; specified locations, to be decided by contractor for gas shed	1	m3			
	Filling to external planters and the like, position stated.					
	Average thickness <0.25m					
E	Obtained off site,crushed aggregate; Compacted in 100mm layers	1	m3			
	Surface Treatments					
F	Applying herbicides to water tank plinth	2	m2			
G	Applying herbicidesto gas shed	1	m2			
	Compacting					
H	Filling	5	m2			
J	Bottoms of excavations for water tank plinth	2	m2			
K	Bottoms of excavations for gas shed	1	m2			
				To Collection		

		Qty	Unit	Rate	$	c
	IN - SITU CONCRETE/ LARGE PRECAST CONCRETE					
	E10: IN - SITU CONCRETE					
	Reinforced in-situ concrete; B.S.5328 designed mix C20 20 aggregate minimum cement content 240 kg/m3; vibrated					
	Slabs for gas shed					
A	thickness 150-450	1	m3			
	Slabs for water tank plinth					
B	thickness 150-450	1	m3			
	E20: FORMWORK FOR IN SITU CONCRETE					
	Formwork and basic finish					
	Sides of ground beams and edges of beds; plain vertical					
C	height not exceeding 250 to gas shed	5	m			
D	height not exceeding 250 to water tank plinth	7	m			
	E30: REINFORCEMENT FOR IN-SITU CONCRETE					
	Reinforcement fabric					
	Reference A142 2.22 kg/m2; 250 side laps; 250 end laps					
E	generally for gas shed	1	m2			
F	generally for water tank plinth	4	m2			

To Collection

		Qty	Unit	Rate	$	c
	MASONRY					
	F10: BRICK/BLOCK WALLING					
	Concrete blocks; BS 6073; 7N/mm2 crushing strength; 440 x 215; solid; in cement-lime mortar (1:1:6)					
	Walls					
A	150 thick	5	m2			
	STRUCTURAL/CARCASSING METAL/TIMBER					
	G10: STRUCTURAL STEEL FRAMING					
	Corrugated iron clad walls					
B	portal frames as drawing #C/035		Item			
	CLADDING/COVERING					
	H75: STAINLESS STEEL SHEET COVERINGS/ FLASHINGS					
	Milled lead sheet B.S.1178					
	Flashings; horizontal					
C	250mm lead flashing with 25mm turned/fixed into the wall mortar joint	2	m			
	Corrugated iron sheeting					
	roof coverings; fixing to timber battens with roofing nails					
D	pitch 15 degrees	2	m2			
				To Collection		

		Qty	Unit	Rate	$	c
	WINDOWS/DOORS/STAIRS					
	L21: METAL DOORS/SHUTTERS/HATCHES					
	Doors in galvanised steel					
	Door					
A	1640 x 1410mm fitted with a drop bolt facility and a main locking device as per drawing #C/035	1	Nr			
	SURFACE FINISHES					
	M10: SAND CEMENT/CONCRETE/GRANOLITHIC SCREEDS/FLOORING					
	Mortar cement and sand (1:4)					
	10mm work to floors on concrete base; one coat					
B	level and to falls only not exceeding 15 degrees from horizontal to gas shed	1	m2			
C	level and to falls only not exceeding 15 degrees from horizontal to water tank plinth	2	m2			
	M20: PLASTERED/RENDERED/ROUGHCAST COATINGS					
	Mortar cement and sand (1:4); steel trowelled					
	10mm work to walls on brickwork or blockwork base					
D	width exceeding 300	5	m2			
	Mortar cement and sand (1:5); steel trowelled					
	10mm work to walls on cement and sand base					
E	width exceeding 300	5	m2			
				To Collection		

		Qty	Unit	Rate	$	c
	M60: PAINTING/CLEAR FINISHING					
	Two coats emulsion paint					
	Cement rendered general surfaces					
A	girth exceeding 300	5	m2			
	DISPOSAL SYSTEMS					
	R10: RAINWATER PIPEWORK/GUTTERS					
	uPVC pipes and fittings B.S.4576 Part 1; push fit joints; pipework and supports self coloured grey					
	Pipes; straight					
B	100mm cut to fit edge of corrugated roofing sheets as per drawing # C/035	2	m			
				To Collection		

	Qty	Unit	Rate	$	c
Collection From					
1/49					
1/50					
1/51					
1/52					
1/53					
6C - EXTERNAL SERVICES Carried to Summary					

	Qty	Unit	Rate	$	c

PRELIMINARIES / GENERAL conditions

Project Particulars

Project particulars

Two Bedroom Dwelling; Located at Barzeys

Names and addresses of employers and consultants

Employer; Government of Montserrat Housing Department and DFID

Architect; Public Works Department; Ministry of Communication, Works and Labour; Montserrat; Telephone 1664-491-6611; Fax 1664-491-6659

Engineer; Public Works Department; Ministry of Communication, Works and Labour; Montserrat; Telephone 1664-491-6611; Fax 1664-491-6659

Quantity Surveyor; Public Works Department; Ministry of Communication, Works and Labour; Montserrat; Telephone 1664-491-6611; Fax 1664-491-6659

Tender and contract documents

Documents

List of drawings / other documents

To be used for contract; Architectural Drawings; C001 - C036

To be used for contract; Electrical Drawings; E001 - E004; Structural Engineering Drawings

To be used for contract; Mechanical Drawings; M001 - M007

To Collection

	Qty	Unit	Rate	$	c

Description of the Works

Description of the work

The construction of two Bedroom Dwelling with Gas shed and water tank plinth

10884mm x 8788mm; 1855mm x 800mm Gas shed; 1400mm x 1400mm water tank plinth

The Contract / Sub Contract

Form of contract

The form of contract to be used JCT SBC/2011 with Quantities

Schedule of clause headings of standard conditions

First Recitals - The Government of Montserrat Housing Department and DFID wishes to have a Two bedroom dwelling constructed at Barzeys ('the Works') and has had drawings and bills of quantities prepared which show and describe the work to be done.

Second Recital - The Contractor has supplied The Government of Montserrat Housing Department and DFID with a fully priced copy of the bills of Quantities, which for identification has been signed or initialled by or on behalf of each party (' the Contract Bills'); and has provided the Government of Montserrat Housing Department and DFID with the priced schedule of activities annexed to this Contract ('the Activity Schedule')

Third Recital - The drawings are numbered/listed in annexed to this Contract ('the Contract Drawings') and have for identification been signed or initialled by or on behalf of each Party.

Article 1: Contractor's obligations

To Collection

	Qty	Unit	Rate	$	c
Schedule of clause headings of standard conditions					
The Contractor shall carry out and complete the Works in accordance with the Contract Documents.					
Article 2: Contract Sum					
The Contract Sum shall be in Eastern Caribbean Dollars; Delete ('Exclusive of VAT') and insert 'Inclusive of duties', consumption and customs services and taxes'.					
Article 3: Project Architect/Contract Administrator					
The Project Architect/Contract Administrator as listed in Project Particulars.					
Article 4: Quantity Surveyor					
The Quantity Surveyor as listed in Project Particulars.					
Article 8: Arbitration					
2.1 General Obligations					
2.4 Date of Possession - progress					
2.5 Deferment of possession					
2.6 Early use by Employer					
2.7 Work not forming part of the Contract					
2.9 Construction information and Contractor's master programme					
2.10 Levels and setting out of the Works.					
2.12 Further drawings, details and instructions.					
2.13 Preparation of Contract Bills and Employer's requirements					
			To Collection		

	Qty	Unit	Rate	$	c
Schedule of clause headings of standard conditions					
2.15 Notice of discrepancies etc.					
2.24 Materials and goods - on site					
2.25 Materials and goods - off site					
2.26 Related definitions and interpretation					
2.27 Notice by Contractor of delay to progress					
2.28 Fixing Completion Date					
2.30 Practical completion and certificates					
2.31 Non-Completion Certificates					
2.32 Payment or allowance of liquidated damages					
2.39 Certificate of Making Good					
3.1 Access for Project Architect/Contract Administrator					
3.2 Person-in-charge					
3.3 Employer's representative					
3.4 Clerk of works					
3.5 Replacement of Architect/Contract Administrator or Quantity Surveyor					
3.6 Contractor's responsibility					
3.7 Consent to sub-contracting					
3.8 List in Contract Bills					
3.9 Conditions of sub-contracting					
3.10 Compliance with instructions					
			To Collection		

	Qty	Unit	Rate	$	c
Schedule of clause headings of standard conditions					
3.11 Non-compliance with instructions					
3.12 Instructions other than in writing					
3.13 Provisions empowering instructions					
3.14 Instructions requiring Variations					
3.15 Postponement of work					
3.16 Instructions on Provisional Sums					
3.17 Inspection - tests					
3.18 Work not in accordance with the Contract					
3.19 Workmanship not in accordance with the Contract					
3.20 Executed work					
3.21 Exclusion of persons from the Works					
4.1 Work included in Contract Sum					
4.2 Adjustment only under the Conditions					
4.3 Items included in adjustments					
4.4 Taking adjustments into account					
4.5 Final adjustment					
4.8 Advance payment					
4.9 Interim payments - due dates and amounts due					
4.10 Interim Certificates and valuations					
4.11 Contractor's Interim Applications and Payment Notices					
			To Collection		

	Qty	Unit	Rate	$	c
Schedule of clause headings of standard conditions					
4.12 Interim payments - final date and amount					
4.15 Final Certificate and final payment					
4.17 Off-site materials and goods					
4.18 Rules on treatment of Retention					
4.20 Retention - amounts and periods					
5.1 Definition of Variations					
5.2 Valuation of Variations and provisional sum work					
5.3 Variation Quotation					
5.4 Contractor's right to be present at measurement					
5.5 Giving effect to Valuations, agreements etc.					
5.7 Daywork					
6.1 Liability of Contractor - personal injury or death					
6.2 Liability of Contractor - injury or damage to property					
6.3 Injury or damage to property - Works and Site Materials excluded					
6.4 Contractor's insurance of his liability					
6.5 Contractor's insurance of liability of Employer					
6.6 Excepted Risks					
6.8 Related definitions					
6.14 Application of clauses					
6.15 Compliance with Joint Fire Code					
			To Collection		

	Qty	Unit	Rate	$	c
Schedule of clause headings of standard conditions					
6.16 Breach of Joint Fire Code - Remedial Measures					
6.17 Joint Fire Code - amendments/revisions					
7.1 General					
7.2 Rights of enforcement					
7.3 Notices					
7.4 Execution of Collateral Warranties					
8.1 Meaning of insolvency					
8.2 Notices under section 8					
8.4 Default by Contractor					
8.5 Insolvency of Contractor					
8.6 Corruption					
8.7 Consequences of termination under clauses 8.4 to 8.6					
8.8 Employer's decision not to complete the Works					
8.10 Insolvency of Employer					
8.12 Consequences of Termination under clauses 8.9 to 8.11, etc.					
9.3 Conduct of arbitration					
9.4 Notice of reference to arbitration					
9.5 Powers of Arbitrator					
9.6 Effect of award					
9.7 Appeal - questions of law					
			To Collection		

	Qty	Unit	Rate	$	c
Special conditions or amendments to standard conditions					
2.38 Schedules of defects and instructions					
Delete the words ' in respect of the Contractor's Designed Portion '					
2.14 Contract Bills and CDP Documents - errors and inadequacy					
Delete the words ' or in the CDP Analysis'					
2.8 Contract Documents.					
Delete the words ' the CDP Documents (where applicable)'					
2.29 Relevant Events					
Replace "United Kingdom Government" with "Government of Montserrat"					
6.4 Contractor's insurance of his liability					
Clause 6.4.1.1 insert the words 'applicable in Montserrat' after the words 'relevant legislation'.					
6.7 Insurance Options					
Insurance A Applies					
6.9 Sub-contractors - Specified Perils cover under Joint Names All Risks Policies					
Clause 6.9.1 Delete the words ' and the Employer, where Insurance Option B or C applies' and " B.1 or C.2'.					
Clause 6.9.2 Delete the words ' B.2.1.2 or C.3.1.2'.					
6.10 Terrorism Cover - policy extensions and premiums					
			To Collection		

		Qty	Unit	Rate	$	c
	Special conditions or amendments to standard conditions					
	Clause 6.10.1 Delete the words ' or the Employer, where insurance Option B or C applies'.					
	6.11 Terrorism Cover - non-availability - Employer's options					
	Clause 6.11.5.3 Delete					
	8.9 Default by Employer					
	Clause 8.9.1.1 Delete the word ('VAT') and insert 'Inclusive of duties, consumption and customs services and taxes'.					
	8.11 Termination by either Party					
	Clause 8.11.1.5 Replace the words ' United Kingdom Government' with ' Government of Montserrat'.					
	Appendix insertions					
A	1.1 Date for Completion of the works		Days			
	clause 2.4; Date of possession: To be inserted					
	Clause 2.32.2; Liquidated Damages At a rate of $500 per day or part of a day					
	4.8. Advance Payment;					
	The Advance payment of 10% of the Contract Sum will be paid to the Contractor upon Contract Signature and the provision of an Advance payment Guarantee subject to the approval of the Financial Secretary. It will be reimbursed to the Employer in monthly equal installments commencing at Interim Certificate No.2					
B	Clause 4.20.1; Percentage of Retention (5 percent)		%			
				To Collection		

	Qty	Unit	Rate	$	c

Appendix insertions

Clause 6.4.1.2; Contractor's insurance: Insurance cover (for any one occurence or series of occurencies arising out of one event

Clause 6.5.1; Insurance liability of Employee Insurance is Required

Clause 6.7; Insurance of the Works
Clause 6.7A Applies

Clause 6.14; Joint Fire Code
Applies

Clause 9.4.1; Appointment of Arbitrator
President or a Vice President pf the Royal Institue of British Architects in accordance wirth laws of Montserrat

Employers insurance responsibility

Minimum Amount of third Paty Insurance
EC$ 400,000.00

Performance guarantee bond / collateral warranties

Amount of Bond or Guarantee (if required) 10 percent of contract price

Employers requirements: Tendering / Sub-letting / Supply

Employers requirements and limitations

TEXT TO BE DEFINITIVE:

Do not alter, add to or modify the text of the Bills of Quantities as this will not be recognized or taken into account and could lead to a disqualification of the tender. If the Contractor wishes to make an observation as to the printed text in connection to the rates he has inserted, such observation shall form the subject of a separate letter to accompany his tender.

To Collection

	Qty	Unit	Rate	$	c

PRICING

Price in ink each item in the Bills of Quantities which is considered to have a money value. If the Tenderer omits to price any item it will be deemed that either he will perform the services described free of charge or that a cost of such service has been included against items appearing elsewhere in the Bills. The rates inserted shall be deemed to be in Eastern Caribbean Currency.

Prices inserted shall be deemed to include for the payment of customs and other duties, import levies and the like, for the provision of all labour, materials and plant for transport, for deliveries to Site (where not specifically mentioned in the description) for temporary storage of materials and return of empties, for the erection, maintenance and removal of scaffolding, temporary staging, plankways protection, etc. and for all other things necessary for the completion of the works in accordance with the drawings and Bills of Quantities to the reasonable satisfaction of the Project Architect.

FLUCTUATIONS

No adjustments shall be made for fluctuations in the cost of labour and materials.

QUERIES

Tenderers shall refer all queries arising out of this Tender to the Project Architect whose decision for the purpose of tendering shall be final.

To Collection

	Qty	Unit	Rate	$	c

QUERIES

Queries shall be raised no later than seven days before the date of tenders so as to permit the circularizing of the replies to all tenderers, if this is considered necessary. Such answers as are necessary shall be given as a matter of assistance to the Tenderer but they shall not be interpreted as adding to, or taking away from, or otherwise altering the meaning and intent of the tender documents, and / or the Tenderer's obligations thereunder, which can be varied only by a letter signed by the Project Architect.

TIME

Time is critical in this contract, therefore the agreed contract completion date must be adhered to.

PERIOD OF VALIDITY

Tenders shall remain open for consideration (unless previously withdrawn) for not less than 90 days from the date fixed for the submission of lodgment of tenders. Information on the date for possession/commencement can be found in section A20

EXCLUSIONS

If the Contractor cannot tender for any part(s) of the Work as defined in the tender documents the Project Architect must be informed as soon as possible, defining the relevant part(s) and stating the reason(s) for the inability to tender.

SUBMISSION:

Detach the completed Form of Tender from one copy of the Priced Bills of Quantities and submit in a sealed envelope and the Bills of Quantities in a separate sealed envelope, both envelopes bearing the title of the Project and the Tenderer's name on or before the appointed date for and at the place of submission of tenders set out in the letter of invitation to tender.

To Collection

	Qty	Unit	Rate	$	c

PRELIMINARIES IN THE SPECIFICATION

The Preliminaries/General conditions sections (A10 -A55 inclusive) have been prepared in accordance with the Standard Method of Measurement of Building Works Seventh Edition Revised 1998 Incorporating Amendments 1+2 SMM7.

ERRORS

Arithmetical errors discovered in the Tenderer's priced Bills of Quantities will be dealt with as follows. If the total net error would cause a divergence from the tendered sum of over $1,000.00 or less, or in the former case if the Tenderer has elected to stand by his/her tender, the total net error will be added to or deducted from the total shown against Preliminaries so that the tendered sum remains the same.

For the purpose of administering the contract, for interim payments and for the settlement of accounts, the amount of any error adjustment shall be calculated as a percentage of the tendered sum (P.C.) and Provisional Sums expected) and applied to all rates.

ACCEPTANCE OF TENDER:

The Employer does not bind himself to accept the lowest or any tender or to reimburse tenderers for any expense incurred in tendering, nor offer no guarantee that any tenderers will be recommended for acceptance or accepted.

To Collection

	Qty	Unit	Rate	$	c

PROGRAMME/METHOD STATEMENT/RISK ANALYSIS

The Contractors' proposed programme as specified in Section 2 (2.9) or a summary thereof showing the sequence and timing of the principal parts of the Works, periods for the planning, construction and handover, and itemizing any work which is excluded must be submitted prior to execution of the contract. In addition the contractor must also submit a clealry detailed method statement based on the working strategies for executing the works and a risk analysis to indicate how they would manage all construction related risks.

Employers requirements: Provision, content and use of documents

Employers requirements and limitations

Definitions and Interpretations

CA; Means the person nominated in the contract as Project Architect or Contract Administrator or their authorized representative.

In writing; When required to advise, notify, inform, instruct, agree, confirm, obtain information, obtain approval or obtain instructions do so in writing.

APPROVAL; (and words derived thereform) means the approval in writing of the CA unless specified otherwise

PRODUCTS; means materials (including naturally occurring materials) and goods (including components, equipment and accessories) intended for permanent incorporation in the Works.

To Collection

	Qty	Unit	Rate	$	c
Definitions and Interpretations CROSS-REFERENCES TO THE SPECIFICATION; Where a numerical cross-reference to a specification section or clause is given on drawings or in any other document the contractor must verify its accuracy by checking the remainder of the annotation or term description against the terminology used in the reference to section or clause. Where a numerical cross-reference is not given the relevant section(s) and clause(s) of the specification will apply, cross-reference thereto being by means of related terminology. Where a numerical cross-reference for a particular type or work, feature, material or product is given, relevant clause(s) elsewhere referred to in the specification section dealing with general matters, ancillary products and workmanship also apply. The Contractor must, before proceeding, obtain clarification or instructions in relation to any discrepancy or ambiguity which may be discovered. REFERENCE DOCUMENTS; Where and to the extent that this specification conflicts with referenced documents, this specification prevails					
			To Collection		

	Qty	Unit	Rate	$	c

Definitions and Interpretations

PROVISIONAL AND PRIME COST (P.C.) SUMS; The term "Provisional Sum" shall mean a sum provided for work or for costs which cannot be entirely foreseen, defined, or detailed at the time the tendering documents are prepared. Such sum shall be used in part or in whole as directed by the Project Architect and shall be deemed to be inclusive of any profit required by the Contractor unless otherwise indicated. The term "Prime Cost Sum" or "P.C. Sum" shall mean a sum provided for work or services to be executed by a sub-contractor nominated by the Project Architect, a statutory authority or a public undertaking or for materials or goods to be obtained from a supplier nominated by the Project Architect. Such sums may be used in part or in whole as directed by the Project Architect and shall be deemed to be exclusive of any profit required by the Contractor and provision is made for the addition thereof if any. When profit is added by the Contractor the sum so added shall be adjusted in direct proportion to the amount of the P.C. sum is actually expended. Where a P.C. price is given in the description of any item of work it shall be taken as a price only for the materials or services referred to (delivered to Site, unless otherwise stated), and the Contractor shall use this price in the build-up of his rate for the supply and installation of that item of work. The P.C. price shall be deemed to include the Contractor's cash discount and the Contractor shall be deemed to have allowed in his price build-up for profit, overheads, attendance, etc. he may require for the P.C. price given. A net adjustment shall be made to the Contractor's built-up price should the service or item selected by the Architect cost more or less than the P.C. price given.

FIX ONLY; means all labours in unloading, handling, storing and fixing in position, including use of plant.

SUPPLY AND FIX; Unless stated otherwise all items given in the schedule of work and/or on the drawings are to be supplied and fixed complete.

To Collection

	Qty	Unit	Rate	$	c

Definitions and Interpretations

MANUFACTURER AND REFERENCE; where used in this combination; "Manufacturer" means the firm under whose name the particular product is marketed. "Reference" means the proprietary brand name and/or reference by which the particular product is identified.

Documents Provided on Behalf of the Employer

BILLS OF QUANTITIES AND DRAWINGS; Read the Bills of Quantities and drawings as one document and carry out everything for the proper execution of the works whether or not specifically described or shown therein, provided the same may reasonable inferred there from a list of the drawings from which the Bills of Quantities have been prepared is embodied in this document. Items in the Materials and Workmanship Section of these Bills of Quantities are deemed to qualify and to be part of every description of measured work to which they refer.

THE MEASURED QUANTITIES; For purposes of ordering products and constructing the Works: The accuracy and sufficiency of the measured quantities is not guaranteed. The specification and drawings shall take precedence over the measured quantities.

THE SPECIFICATIONS; All sections of the specification must be read in conjunction with Main Contract Preliminaries/General conditions.

To Collection

	Qty	Unit	Rate	$	c
Documents Provided on Behalf of the Employer					
DISCREPANCIES; Verify on drawings and on site all dimensions shown or given before commencing construction. Work to figured dimensions only and in the absence of any dimensions, or in case of discrepancies between dimensions, bring the matter to the immediate attention of the Project Architect for a decision. For the purpose of construction, the drawings shall take precedence over the Bills of Quantities but in all cases of discrepancies between the documents, bring the matter to the attention of the Project Architect whose decision shall be final and binding. The accuracy of dimensions scaled from the drawings is not guaranteed. Obtain from the Project Architect/CA any dimensions required but not given in figures on the drawings nor calculable from figures on the drawings.					
COPIES; Two copies of the Bills of Quantities and all drawings shall be furnished free of charge to the contractor for his own use until the completion of the contract. They shall be accessible, at all reasonable times, to the Project Architect, to whom they shall be returned at the completion of the contract. After execution of the contract, two copies of the specification will be issued to the contractor in accordance with the contract. Additional copies will be issued on request, if available, but will be charged to the contractor.					
ORDERING OF MATERIALS; Do not use the Bills of Quantities as a ordering list. Tenderers are advised to prepare their own material loading list based on the construction drawings issued and on measurements where appropriate.					
TECHNICAL LITERATURE; The Contractor is advised to keep copies of the following on site, readily accessible for reference by all supervisory personnel: Manufacturers' current literature relating to all products to be used in the Works; Relevant BS and or Codes of Practice					
			To Collection		

	Qty	Unit	Rate	$	c

Documents Provided on Behalf of the Employer

MAINTENANCE INSTRUCTIONS AND GUARANTEES; Retain copies delivered with components and equipment (failing which, obtain), register with manufacturer as necessary and hand over to CA on or before Practical Completion. Notify the Project Architect/CA of telephone number for emergency services by Subcontractors after Completion.

Employer's requirements: Management of the Works

Employers requirements and limitations

Generally

THE SITE; Tenderers are expected to visit the site and ascertain the nature of the work to be done, means of access and egress, the availability and positions of essential services, viz. electricity, water, etc., condition of the Site, necessity for and extent of sleeper roads, temporary crossings and temporary drainage, working space and storage for materials and allow in this tender for all such factors which may affect the execution of the Works.

INSURANCE; Before starting work on site submit documentary evidence and/or policies and receipts for the insurance required by the Conditions of Contract.

INSURANCE CLAIMS; If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, forthwith give notice in writing to the Employer, the Project Architect/CA and the Insurers. Indemnify the Employer against any loss which may be caused by failure to give such notice.

To Collection

	Qty	Unit	Rate	$	c
Generally CLIMATIC CONDITIONS; Keep an accurate record of: Daily maximum and minimum air temperatures (including overnight). Delays due to adverse weather, including description of the weather, type(s) of work affected and number of hours lost. SUPERVISION; Accept responsibility for co-ordination, supervision and administration of the Works, including all subcontractor. Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for co-ordination of the work. MAINTENANCE OF ROADS; Maintain the public and private roads, footpaths, ditches, curbs, and the like. Keep the approaches to the site free from excavated materials, mud and debris. The Contractor is to make good any damage due to any cause within his control at his own expense or pay any cost and charges in connection therewith. TEMPORARY ROADS; Provide, maintain and alter as necessary all temporary roads, tracks, paths, hard standings, pavement crossings, temporary works and the like. Reinstate all ground and all work disturbed on completion of the works. PROTECTION OF PUBLIC AND PRIVATE SERVICES; Protect, uphold, temporarily divert and maintain all pipes, ducts, drains, sewers, service mains, overhead cables and the like during the execution of the works. The Contractor is to make good any damage due to any cause within his control at his own expense or pay any cost and charges in connection therewith. Approval shall be obtained at least two weeks in advance if any service have to be interrupted.					
			To Collection		

	Qty	Unit	Rate	$	c
Generally					
SITTING OF TEMPORARY WORKS AND OF PERMANENT SOIL DISPOSAL; Obtain the approval of the Project Architect to the sitting of permanent soil disposal and notify him of the proposed sitting of materials, of temporary soil and rubbish deposits and of temporary buildings, temporary roads and the like.					
TEMPORARY WATER DISPOSAL; Provide and maintain temporary gutters, channels, drains and the like for the disposal of surface and other water. Alter, shift and adapt from time to time as necessary.					
WATER LEVEL; Information on soil tests and water level is obtained front a soil Investigation report which is available for inspection at the office of the Engineer during normal working hours.					
FRINGE BENEFITS; Allow for all cost in respect of National Insurance, Vocation and Public Holiday Leave, Sick Leave, Cost of Living Allowances, Subsistence Allowances, traveling time and expenses and all other emoluments and expenses payable to or in connection with the employment of persons for the Works. Comply with all local regulations in force relating to the welfare of workpeople on the site or in places where work is being prepared for incorporation into the Works and keep and maintain, at all times, an adequate First Aid Kit on the site.					
			To Collection		

		Qty	Unit	Rate	$	c
	Generally REVISED FAIR WAGES CLAUSE;The Fair Wages Clause 31 of the conditions of Contract shall be deleted and replaced by the following; (1) The Contractor shall pay rates of wages that are not less than favorable than: (Approximate) The rates of wages established under a collective agreement between employers or employers' association and workers' organisation representative respectively of substantial proportions of employers and workers engaged in the trade or industry, whether or not the Contractor is a party to such agreement. (B) The rates established in the absence of or subsequent to any collective agreement, under any arbitration award for work of the same character in the trade or industry, whether or not such award is binding on the Contractor. (C) The minimum rates of wages established by any law. (D) Such rates of wages are as paid by Government for work of the same character in the trade or industry, in the absence of any collective agreement, arbitration award or provision of law. (2) The Contractor or sub-contractors shall post notices in conspicuous places at the establishment and work-places concerned informing the workers of the rates of pay and other conditions of work. (3) The Contractor or his sub-contractor shall keep proper wages and time books and, in the event of work being paid for any results, work sheets shall be kept showing wages paid to, the time and / or the amount of work performed by workmen in and about the execution of the Contractor or his sub-contractor shall be bound whenever required to produce such wages and time books and / or work sheets for the inspection of any person authorized by the Contractor. (4) (a) The Contractor shall be prohibited from transferring or assigning directly or indirectly to any person or persons what ever, any part of his contract without the written permission of a person authorized by the Government.					
				To Collection		

		Qty	Unit	Rate	$	c
	Generally The units measurement have been abbreviated in the Bills as follows:- Cubic Meters ~ m^3. Linear Meters ~ m. Square Meters ~ m^2. Number ~ Nr. Pound ~ lb. All weights and measures referred to in the Bills of Quantities are those normally in use locally unless otherwise stated. PROGRAMME/PROGRESS					
A	OVERTIME; The contractors attention is drawn to the restricted working hours as set out under the relevant item of this Section of the Bills of Quantities. Work outside those hours specified or authorised later by the Project Architect shall be permitted.		Item			
				To Collection		

	Qty	Unit	Rate	$	c
PROGRAMME/PROGRESS PROGRESS CHART AND REPORTS; The Contractor shall prepare and submit with his tender a draft programme and progress chart of the entire Works. If the Contractor is awarded the Contract, he shall agree the details of his programme with the Project Architect and shall produce four (4) copies of the agreed chart for the Architect and shall display the chart on the site and record progress thereon during the execution of the Works. The Contractor shall so programme the work as not to interfere with the free use of any existing buildings, roads, and other areas and or adjoining the site. The Contractor shall keep a permanent written record on the site of the progress of the Works. This record shall be open to the inspection of the Project Architect at all reasonable times. A copy shall be furnished to the Project Architect on request. The report will contain at least the following:					
			To Collection		

	Qty	Unit	Rate	$	c
PROGRAMME/PROGRESS PROGRESS CHART AND REPORTS; 1. Weather Conditions 2. Manpower on the job in each trade. 3. Major items of equipment on the job. 4. A brief summary of work accomplished that day. 5. Materials, equipment, or Employer furnished items arriving or leavings site. 6. Significant events, including accidents. 7. Any testing made and their results, if known 8. Any oral instructions received. 9. Visitors on the job. 10. Possible causes for delay. The record shall show the dates of commencement and completion of all trades and parts of the work coming under the Contract. It shall also include particulars regarding daily weather conditions, excavation works, erection and removal of formwork, pouring of concrete etc., as well as the number of employees of the various trades engaged on the Works. SUBMISSION OF PROGRAMME; This will not relieve the Contractor of responsibility to advise the Project Architect/CA of the need for further drawings or details or instructions in accordance with the Conditions of the Contract. COMMENCEMENT OF WORK; Inform the Project Architect/CA at least 5 working days before the proposed date of commencement of work on site.					
			To Collection		

	Qty	Unit	Rate	$	c

PROGRAMME/PROGRESS

SITE MEETINGS; The Project Architect/CA will hold regular site meetings to review progress and other matters arising from the administration of the Contract. Meetings will normally be held monthly. Ensure the availability of accommodation at the time of such meetings. Attend all meetings and inform subcontractors and suppliers when their presence is required. The Project Architect/CA will chair the meetings and take and distribute minutes.

NOTICE OF COMPLETION; Give the Project Architect/CA at least 2 weeks notice of the anticipated dates of Practical Completion of the whole or parts of the Works.

ADVERSE WEATHER; Use all reasonable and suitable building aids and methods to prevent or minimize delays during adverse weather conditions.

CONTROL OF COST

CASH FLOW FORECAST; As soon as possible and before starting work on site submit to the Project Architect/CA a forecast showing the gross valuation of the Works at the date of each Interim Certificate throughout the Contract period and based upon the programme for the Works.

MEASUREMENT; Give reasonable notice to the Quantity Surveyor before covering up work which the Quantity Surveyor requires to be measured.

DAYWORK VOUCHERS; Give reasonable notice to the Project Architect/CA of the commencement of any work for which daywork vouchers are to be submitted. Before being delivered, each voucher must be:

1) Referenced to the instruction under which the works is authorised, and
2) Signed by the person in charge as evidence that the workmen names, the time spent by each, the plant and materials shown are correct.

To Collection

	Qty	Unit	Rate	$	c

CONTROL OF COST

INTERIM VALUATIONS; At least 3 days before the end of each established Period for interim valuations submit to the QS details of amounts due under the Contract together with all necessary supporting information.

UNFIXED MATERIALS; At the time of each valuation disclose to the QS which of the unfixed materials and goods on site are free from, and which are subject to, any reservation of title inconsistent with passing or property as required by the Conditions of the Contract, together with their respective values. When requested provide evidence of freedom from reservation of title.

LABOUR AND PLANT RETURNS; At the beginning of each week provide for verification by the CA records showing, for each day of the previous week:

1) The number and description of craftsmen, labourers and other persons employed on or in connection with the Works, including those employed by subcontractors.

2) The number, type and capacity of all mechanical and power-operated plant employed on the Works.

To Collection

	Qty	Unit	Rate	$	c

Employers requirements: Quality standards / control

Employers requirements and limitations

MATERIALS AND WORK GENERALLY

GOOD PRACTICE; Where and to the extent that materials, products and workmanship are not fully detailed or specified they are to be:

a) Of a standard appropriate to the Works and suitable for the functions stated in or reasonable to be inferred from the project documents,

b) In accordance with relevant good building practice.

GENERAL QUALITY OF PRODUCTS;

a) Materials and workmanship are to be of the best quality of their respective kinds, and those for which there is a British Standard or Code of Practice are to conform thereto unless otherwise stated. Workmanship is to conform to sound building practice unless otherwise described or shown.

b) Products to be new unless otherwise specified.

BEST QUALITY; Materials and workmanship are to be of the best quality of their respective kinds, and those for which there is a British Standard or Code of Practice are to conform thereto unless otherwise stated. Workmanship must conform to sound building practice unless otherwise described or shown.

APPLY THROUGHOUT; Description of materials and workmanship given in any one Section of Trade are to apply throughout the Bills of Quantities unless otherwise described.

To Collection

		Qty	Unit	Rate	$	c
	MATERIALS AND WORK GENERALLY BRAND NAMES; Where materials are described by Brand or Trade names such names are given as indication of type, quality etc. Allow in tendering for these particular materials but alternatives may be used with the Project Architects approval. If approval is not given the materials described herein must be provided. All branded materials shall be used strictly in accordance with the respective manufacturer's recommendations or instructions. The Contractor shall be responsible for obtaining from manufacturers all relevant details regarding the use of their products. The Contractor shall bring immediately to the attention of theProject Architect any differences between the manufacture's recommendations and the specification given herein for a decision on which it will take precedence. MATERIALS PROVIDE AS NECESSARY; Provide as necessary all materials required for the proper execution and completion of the Works. MATERIALS AVAILABILITY; Ensure that all materials will be available from stock and, if this is not the case, make arrangements for deliveries so that no delay is occasioned due to the non-availability of materials.					
A	LABOUR PROVIDE AS NECESSARY; Provide as necessary, all skilled, semi-skilled and unskilled labor required for the execution and completion of the Works. Workmanship is to be of the best quality throughout, to the reasonable satisfaction of the Project Architect. Provide a competent foreman-in-charge and all other site staff such as storekeeper, timekeeper, checker, etc., necessary for the proper supervision of the Works. Any instruction given by the Project Architect to the foreman-in-charge shall be deemed to have been given to the contractor.		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	MATERIALS AND WORK GENERALLY LABOUR AVAILABILITY; Ensure that all labour will be available for the Works and allow in the tender for the additional cost of any importation of labour from other districts that may be deemed necessary. TRANSPORTATION PROVIDE AS NECESSARY; Provide all necessary transport for labour, materials and plant. SAMPLES; Samples and materials, colors, finished work, etc. shall be provided, without charge to the Project Architect for approval if required. Keep approved samples on site in an approved position for use as reference by craftsmen. No materials or workmanship which in the opinion of the Project Architect is of a lower quality than the approved sample will be accepted by the Project Architect.					
A			Item			
	ACCURACY/SETTING OUT GENERALLY RECORD DRAWINGS; Keep accurate records, in a form acceptable to the Project Architect, of the position and routing of all services internally and externally, whether executed by own workman or others, and deliver in duplicate fully detailed drawings to the Architect not later than seven days after completion of the particular installation. Record details of all grids lines, setting-out stations, bench marks and profiles on the site setting-out drawings. Retain on site throughout the Contract and hand to the Project Architect/CA on Completion ACCURACY OF INSTRUMENTS; Use instruments and methods described in BS 5606, Appendix A					
				To Collection		

	Qty	Unit	Rate	$	c
ACCURACY/SETTING OUT GENERALLY SETTING OUT; Check the levels and dimensions of the site against those shown on the drawings, and record the results on a copy of the drawings. Notify the Project Architect/CA in writing of any discrepancies and obtain instructions before proceeding. Inform the Project Architect/CA when overall setting out is completed and before commencing construction. SUPERVISION/INSPECTION/DEFECTIVE WORK SUPERVISION; In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of works must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress. CO-ORDINATION OF ENGINEERING SERVICES; The site organisation staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering services, one with another and each in relation to the Works generally. Submit to the Project Architect/CA, when requested, CV's or other documentary evidence relating to the staff concerned. DEFECTIVE WORK; Any defective materials or sub-standard workmanship not in accordance with this contract shall be removed and replaced without charge.					
			To Collection		

		Qty	Unit	Rate	$	c
	SUPERVISION/INSPECTION/DEFECTIVE WORK					
A	TEST; Provide materials for and carry out tests as and when directed by the Project Architect. If the results of any tests are unsatisfactory bear the cost of any resulting reconstruction which may be ordered by the Project Architect. Make the necessary provisions in your bid price for the cost of testing materials or workmanship by independent agencies as may be directed by the Project Architect. The cost of testing materials and workmanship found not to be in accordance with the Specification shall be bone by the Contractor. Load testing of piles (if applicable) is measured in the Measured Works Section of the Bills of Quantities.		Item			
	WORK AT OR AFTER COMPLETION					
	GENERAL CLEAR AWAY AND CLEAN; Clear away all plant and temporary work unless otherwise described or directed and make good. Clear away all existing rubbish, debris and surplus materials as they accumulate and at completion. Clean floors, pavings, glass both sides and all external surfaces and leave the Works clean and perfect at completion.					
	Employers requirements: Security / Safety /Protection					
	Employers requirements or details stated					
	Noise and pollution control					
	Comply generally with the Local laws as it applies to noise pollutions. Comply generally with the recommendations of BS 5228 Part 1, clause 9.3 for minimising noise levels during the execution of the Works. Take all reasonable precautions to prevent pollution on the site, the Works and the general environment.					
				To Collection		

	Qty	Unit	Rate	$	c

Security

The site of the proposed Works shall be under the Contractor's sole charge from the date of possession to the date of completion of the Contract. Provide all necessary day and night watching to effectively protect the Works and materials stored on site including those of sub-contractors and accept all risks for damage or loss. Provide all necessary temporary hoarding, barricades, planked footways, gantries, screens, etc., for the protection of the work people, occupants, adjoining property and the public and alter, adapt and maintain them as necessary and clear away on completion and reinstate all work disturbed to the satisfaction of the relevant authorities.

Protection of work in all sections

Case up and protect all work including that executed by sub-contractors and specialists from any kind of injury and damage. Provide all necessary temporary roofs, tarpaulins, screens, planking and general protection that may be required and clear away when no longer needed and reinstate any work which has become damaged or stained.

Explosive

Do not use

Nuisance

Take all reasonable precautions to prevent nuisance from smoke, dust, rubbish, vermin and other causes

Fire prevention

Smoking will not be permitted on the site, equip appropriate areas with fire equipment and schedule inspections to guard against risk of fire. Burning of materials arising from the work will not be permitted.

To Collection

	Qty	Unit	Rate	$	c
Water Prevent damage from storm and surface water. (items for keeping the site and excavations free from water are given elsewhere). Employers requirements: Specific limitations on method/ sequence timing / use of site **Employers requirements or limitations, details stated** Access Prevent any trespassing by unauthorised persons on the site of the Works and any trespassing on the adjoining property by own employees or those of sub-contractors and indemnify the Employer against any claims, costs or proceedings whatsoever arising out of any trespassing or alleged trespassing. Use of the site Inform the Project Architect/CA of the intended siting of all spoil heaps, temporary works and services. Provide suitable temporary accommodation for site meetings, the room may be part of the contractors own site office. Provide and maintain in a clean condition sanitary accommodation for the Employer's representatives, either separate or shared with the Contractor's supervisory staff. The accommodation must include an adequate number of appliances, wash hand basin(s) with adequate lighting and ventilation. MAINTAIN Maintain, alter, adapt and move temporary works and services as necessary. Remove when no longer required and make good.					

		Qty	Unit	Rate	$	c
	Contractors general cost items: Management and staff					
	Management and staff					
A	The Project Architect in conjunction with the Contractor shall select all temporary buildings including areas for use by nominated sub-contractors as may be necessary. The Ground on which temporary buildings are sited shall be made good after removal of these buildings. Provide, erect and maintain suitable office accommodation and Mess-rooms for staff and workmen and remove on completion. Provide, erect and maintain suitable sheds for storage of materials and remove on completion. Provide temporary latrines for the use of workmen, to the satisfaction of the Project Architect and the relevant Sanitary Authorities and empty and cleanse same as and when required and clear away on completion. For the purposes of this Contract the Contractor shall provide suitable space within the general site office, provided for the Contractor's supervisor, for a large desk with two chairs for use by the Employers consultants or representatives. This work will be carried by the Contractor.		Item			
	Contractors general cost items: Services and facilities					
	Services and facilities					
	Lighting					
B	Provide all necessary artificial lighting and power, including that for sub-contractors and specialists, and pay all charges for drawing off main supply. This work will be carried by the Electrical Contractor.		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	Water					
A	Provide water for the works including that for sub-contractors and specialists, at the various levels and positions where required including all necessary sumps temporary plumbing and storage and pay all charges for drawing water from main supply. This work will be carried by the Plumbing Contractor.		Item			
	Telephone and administration					
B	Provide a site telephone for the duration of the Works with branch lines to the Foreman's offices and pay all charges in connection therewith. This provision will be made available by the Contractor.		Item			
	Safety, health and welfare					
C	Include for complying with all local statutes and regulations in force relating to the safety, health and welfare of work people employed in connection with the works on site or in places where work is being prepared for incorporation into the Works, and for keeping and maintaining at all times an adequate First Aid kit on the site		Item			
	Storage of materials					
D	Provide and maintain proper sheds for the storage of materials, plant and items brought on to site for use in the Works.		Item			
	Rubbish disposal					
E	Provide for removing all rubbish from the site and deposit in an approved dump site both as it accumalates from time to time and on completion, and for generally keeping the Works and the site clean and tidy at all times.		Item			
	Cleaning					
F	The Contractor shall keep and maintain the site in a neat and tidy condition for the duration of the Contract.		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	Protection of work in all sections					
A	Allow for all work in connection with protecting all the Works, by whatever means necessary from any kind of injury or damage. Provide all necessary temporary roofs, tarpaulins, screens, planks and general protection that may be required and clear away when no longer needed and reinstate any work which has become damaged or stained.		Item			
	Maintain public and private roads					
B	The Contractor shall be responsible for maintaining and protecting private and public roads and that of drainage. The Contractor shall indemnify the Employer against any claim for damge to public and private roads and that of drainage caused by the execution of the Works		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	General attendance on nominated sub-contractors					
A	Provide attendance upon, cut away for and make good after trades performed by own workmen and own sub-contractors and leave perfect on completion.					
	Provide general attendance on nominated sub-contractors which shall be deemed to include allocation, for free use by sub-contractor, of suitable areas on site for office accommodation and storage of plant and materials, reasonable and free use of scaffolding and hoisting tackle already erected by the Contractor, free use of mess-rooms, sanitary accommodation and their work and cleaning away rubbish. When a lump sum price is inserted against this item it shall be adjusted in direct proportion to the amount of the nominated sub-contract P.C. sum actually expended.					
	Provide special attendance on nominated sub-contractors e.g. cutting chases and the like, only when specifically instructed so to do following the items in the Bills of Quantities which describe the particular nominated sub-contract work. When a lump sum price is inserted against this item it shall be adjusted in direct proportion to the amount of the nominated sub- contract P.C. sum actually expended.		Item			
	Contractors general cost items: Mechanical plant					
	Hoists					
B	Provide all hoist and the like for the proper execution and completion of the Works.		Item			
	Transport					
C	Provide all transport and the like for the proper execution and completion of the Works.		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	Concrete plant					
A	Provide all concrete plant and the like for the proper execution and completion of the Works.		Item			
	Contractors general cost items: Temporary works					
	Temporary roads					
B	Provide and maintain all necessary temporary roads, tracks, gangways, bridges and the like, within the site for the proper completion of the works		Item			
	Scaffolding					
C	Provide all scaffolding necessary for the proper execution and completion of the Works including altering, adapting and maintaining during the progress of the works		Item			
	Hoardings, fans, fencing etc.					
D	Provide and maintain all necessary temporary fences, hoardings, planked footways, guard rails, gantries and the like necessary for the protection of the public and the proper execution of the Works and comply with the requirements of all official bodies having authority in connection with the Works		Item			
	A53: WORK BY STATUTORY AUTHORITIES					
	Include the following Provisional Sums:-					
	For work by statutory undertakings					
E	sewer connection		Item			
F	electricity main and meter		Item			
G	water main and meter		Item			
H	telephone connection charge		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	A54: PROVISIONAL WORK					
	Include the following Provisional Sums:-					
	For undefined work					
A	contingencies		Item			
				To Collection		

		Qty	Unit	Rate	$	c
	Collection From					
	1/55					
	1/56					
	1/57					
	1/58					
	1/59					
	1/60					
	1/61					
	1/62					
	1/63					
	1/64					
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	1/76					
	1/77					
	1/78					
	1/79					
	1/80					
	1/81					
	1/82					
	1/83					

		Qty	Unit	Rate	$	c
	1/84					
	1/85					
	1/86					
	1/87					
	1/88					
	1/89					
	1/90					
	1/91					
	1/92					
	1/93					
	1/94					
	7 - PRELIMINARIES Carried to Summary					

Two Bedroom Dwelling

	Qty	Unit	Rate	$	c
Summary					
1 - SUBSTRUCTURE / 3					
2A - FRAME / 7					
2C - ROOF / 12					
2F - WINDOWS & EXTERNAL DOORS / 14					
2G - INTERNAL WALLS & PARTITIONS / 16					
2H - INTERNAL DOORS & SCREENS / 19					
3A - WALL FINISHES / 21					
3B - FLOOR FINISHES / 24					
3C - CEILING FINISHES / 26					
4A - FITTINGS & FURNISHINGS / 28					
5A - SANITARY APPLIANCES / 30					
5C - DISPOSAL INSTALLATIONS / 35					
5D - WATER INSTALLATIONS / 40					
5E - HEAT SOURCE / 42					
5H - ELECTRICAL INSTALLATIONS / 48					
6C - EXTERNAL SERVICES / 54					
7 - PRELIMINARIES / 96					
To Final Summary					

Annex F to
04_01_42523
Dated 4 Sep 15

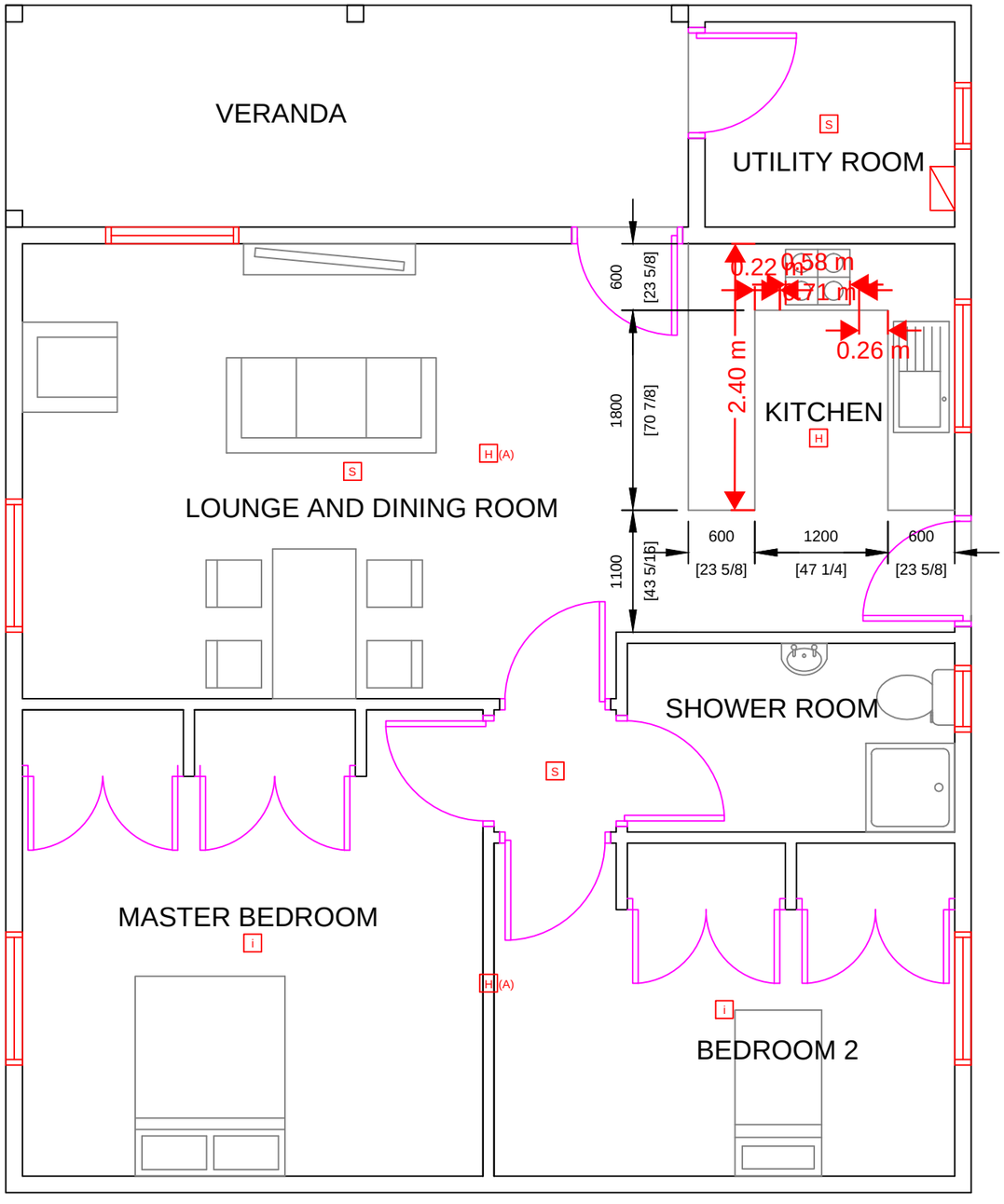
DRAWING REGISTER

62/42523/C/001	2 Bedroom House Elevations
62/42523/C/002	2 Bedroom House Floor Plan
62/42523/C/003	2 Bedroom House Column and Blockwork Elevation 1
62/42523/C/004	2 Bedroom House Column and Blockwork Elevation 2
62/42523/C/005	2 Bedroom House Cut A-A
62/42523/C/006	2 Bedroom House Cut B-B Standard DPM Detail
62/42523/C/007	2 Bedroom House Section H-H
62/42523/C/008	2 Bedroom House RC Slab Configuration
62/42523/C/009	2 Bedroom House RC Slab Top and Bottom Mesh Configuration
62/42523/C/010	2 Bedroom House RC Slab Details
62/42523/C/011	2 Bedroom House Middle Column Base Elevation
62/42523/C/012	2 Bedroom House Corner Column Base Elevation
62/42523/C/013	2 Bedroom House RC Column Details
62/42523/C/014	2 Bedroom House Reinforcement Elevations (Wall 1)
62/42523/C/015	2 Bedroom House Reinforcement Elevations (Wall 2)
62/42523/C/016	2 Bedroom House Reinforcement Elevations (Wall 3)
62/42523/C/017	2 Bedroom House Reinforcement Elevations (Wall 4)
62/42523/C/018	2 Bedroom House Reinforcement Elevations (Wall 5)
62/42523/C/019	2 Bedroom House Reinforcement Elevations (Wall 6)
62/42523/C/020	2 Bedroom House Reinforcement Elevations (Details)
62/42523/C/021	2 Bedroom House RC Ring Beam Corner Connectors
62/42523/C/022	2 Bedroom House Bar Bending Schedule
62/42523/C/023	2 Bedroom House Roof Plan
62/42523/C/024	2 Bedroom House Truss 1 Details and Cutting Schedule
62/42523/C/025	2 Bedroom House Truss 2 Details and Cutting Schedule
62/42523/C/026	2 Bedroom House Truss 3 Details and Cutting Schedule
62/42523/C/027	2 Bedroom House Roof Details
62/42523/C/028	2 Bedroom House Veranda Roof Plan, Cut F-F and Cut G-G
62/42523/C/029	2 Bedroom House Typical Stud Wall
62/42523/C/030	2 Bedroom House Typical Stud Wall Opening
62/42523/C/031	2 Bedroom House Stud Wall Junctions and Sole Plate Joints
62/42523/C/032	2 Bedroom House Internal/External Wall Connection Detail 1
62/42523/C/033	2 Bedroom House Internal/External Wall Connection Detail 2
62/42523/C/034	2 Bedroom House Typical Stud Wall Fixing Detail
62/42523/C/035	2 Bedroom House Gas Storage
62/42523/C/036	2 Bedroom House Rainwater Harvesting Storage Tank Support Plinth

62/42523/E/001	2 Bedroom House Electrical Schematic
62/42523/E/002	2 Bedroom House Power Layout
62/42523/E/003	2 Bedroom House Lighting Layout
62/42523/E/004	2 Bedroom House Electrical Installation Details

62/42523/M/001	2 Bedroom House Domestic Water Layout
62/42523/M/002	2 Bedroom House Cold Water Isometric Layout
62/42523/M/003	2 Bedroom House Hot Water Isometric Layout
62/42523/M/004	2 Bedroom House Rainwater Harvesting Detail
62/42523/M/005	2 Bedroom House Drainage Details
62/42523/M/006	2 Bedroom House Solar Thermal Hot Water System Plan Layout
62/42523/M/007	2 Bedroom House Solar Hot Water System Installation Detail

LEGEND	
S SMOKE DETECTOR	i IONISATION SMOKE DETECTOR
H HEAT DETECTOR	H(A) HEAT DETECTOR INSTALLED AT APEX OF BUILDING



LEGEND	
	REDUCER
	THERMOSTATIC MIXING VALVE
	DOUBLE CHECK VALVE
	ISOLATING VALVE
	PRESSURE REDUCING VALVE

ASSOCIATED DRAWINGS

No.	TITLE
C/001	2 BEDROOM HOUSE FLOOR PLAN
M/001	2 BEDROOM HOUSE DOMESTIC WATER LAYOUT
M/003	2 BEDROOM HOUSE HOT WATER ISOMETRIC LAYOUT

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. CYLINDER FEED PRESSURE REDUCING VALVE SETTING DEPENDANT ON CYLINDER WORKING PRESSURE.
5. THERMOSTATIC MIXING VALVES SET TO SUPPLY WATER AT 40 DEGREES CELSIUS.
6. ALL PIPE LENGTHS ARE APPROXIMATES.
7. ALL PIPE WORK IS TO BE COPPER PIPE TO BS 6700.

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE FLOOR PLAN 2

DRAWING No/CAD FILE: A/002

SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

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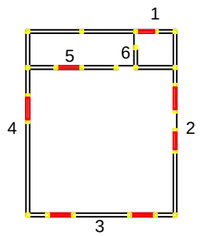
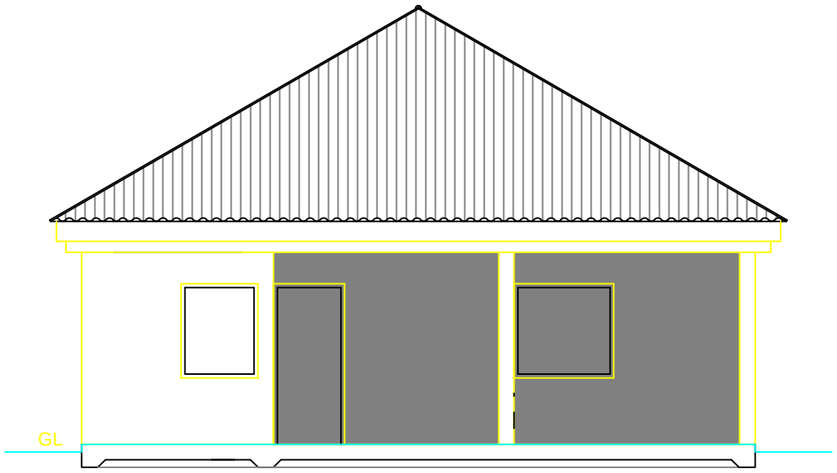
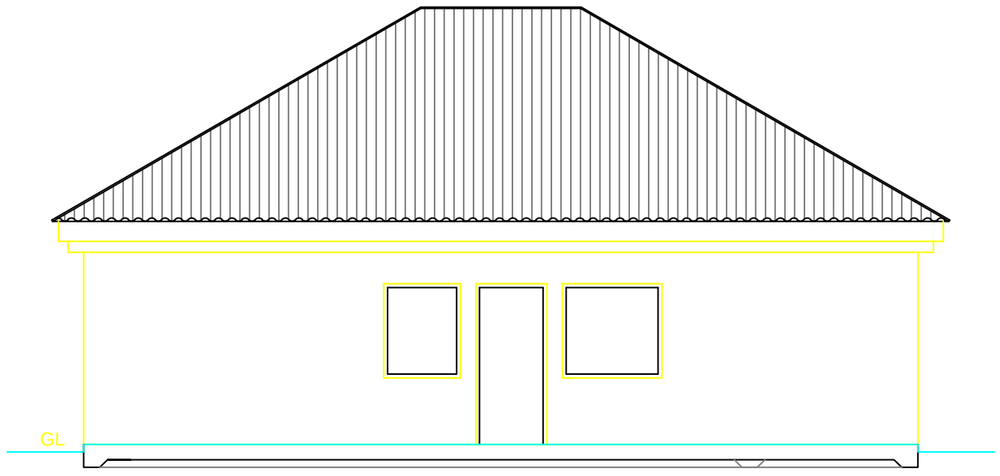
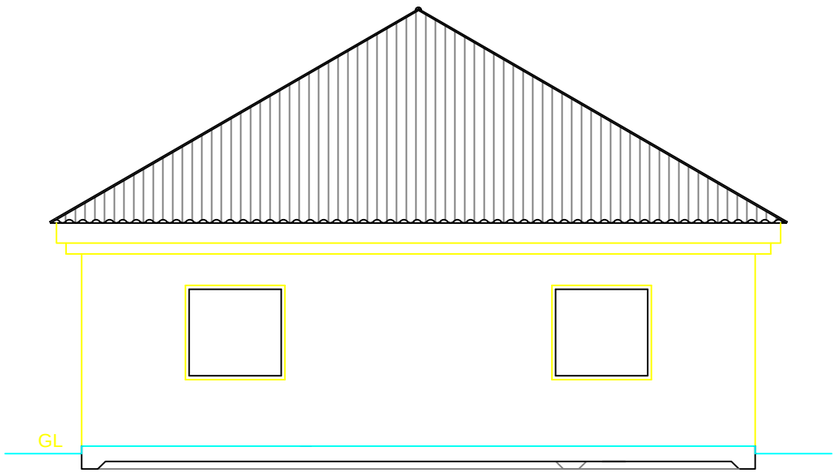




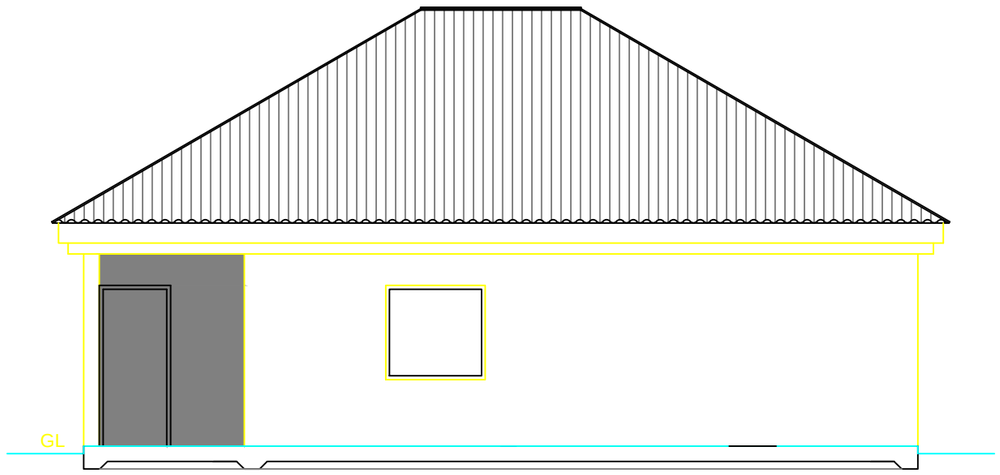
ELEVATION 1
SCALE 1:50



ELEVATION 2
SCALE 1:50



ELEVATION 3
SCALE 1:50



ELEVATION 4
SCALE 1:50

ASSOCIATED DRAWINGS

No.	TITLE
C/003	2 BEDROOM HOUSE COLUMN AND BLOCK WORK ELEVATION 1
C/004	2 BEDROOM HOUSE COLUMN AND BLOCK WORK ELEVATION 2

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE ELEVATIONS

DRAWING No/CAD FILE

C/001

SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN	APPROVED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

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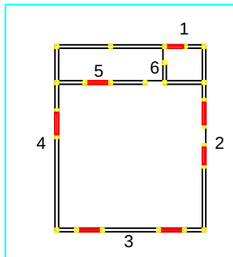
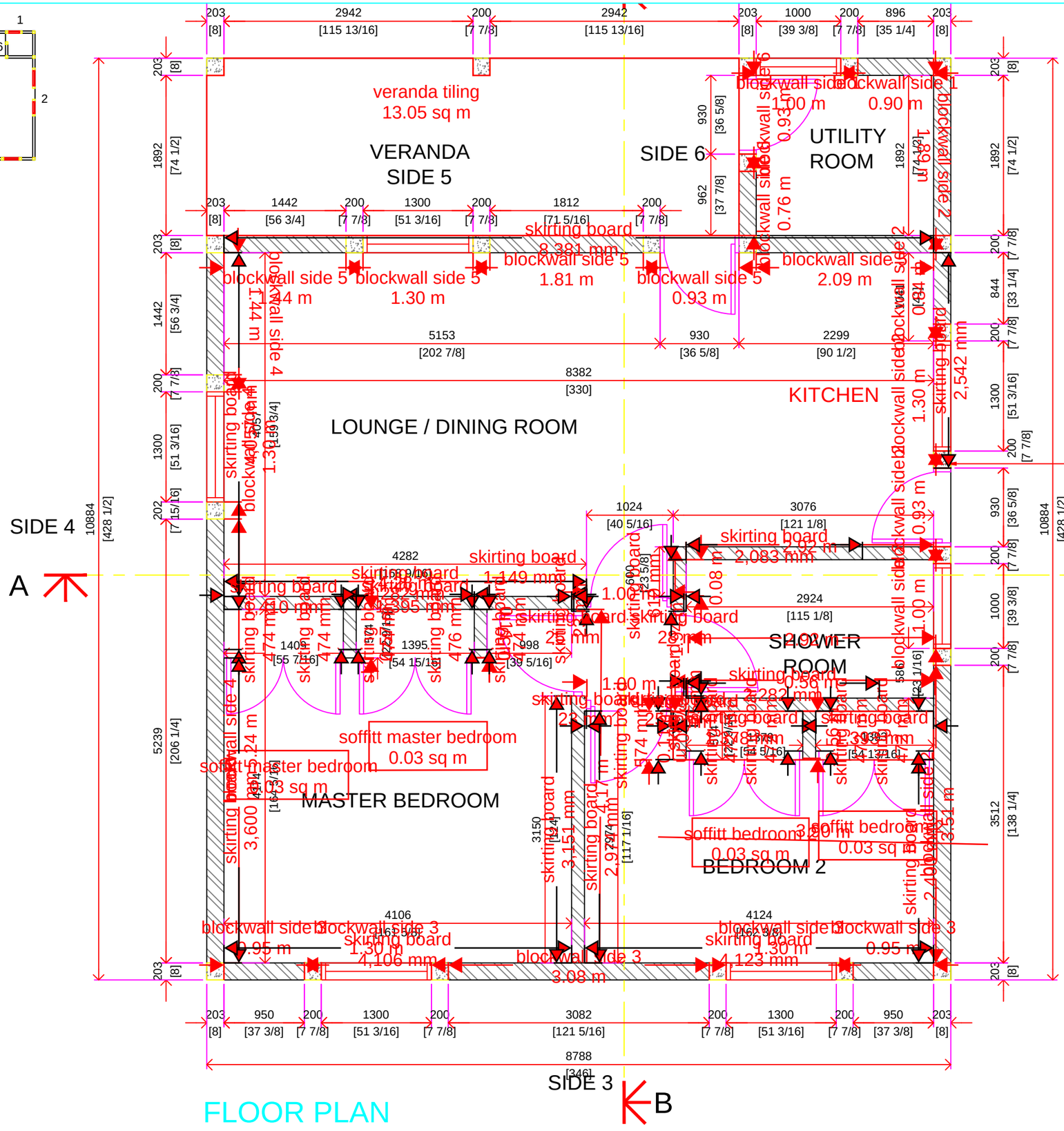




ASSOCIATED DRAWINGS

No.	TITLE
C/001	2 BEDROOM HOUSE ELEVATIONS
C/003	2 BEDROOM HOUSE COLUMN AND BLOCK WORK ELEVATION 1
C/004	2 BEDROOM HOUSE COLUMN AND BLOCK WORK ELEVATION 2
C/005	2 BEDROOM HOUSE CUT A - A
C/006	2 BEDROOM HOUSE CUT B - B STANDARD DPM DETAIL
C/021	2 BEDROOM HOUSE RC RING BEAM CORNER CONNECTORS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.

LEGEND

	TIMBER STUD WALL
	REINFORCED CONCRETE & MASONRY WALL

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE FLOOR PLAN

DRAWING No/CAD FILE

C/002

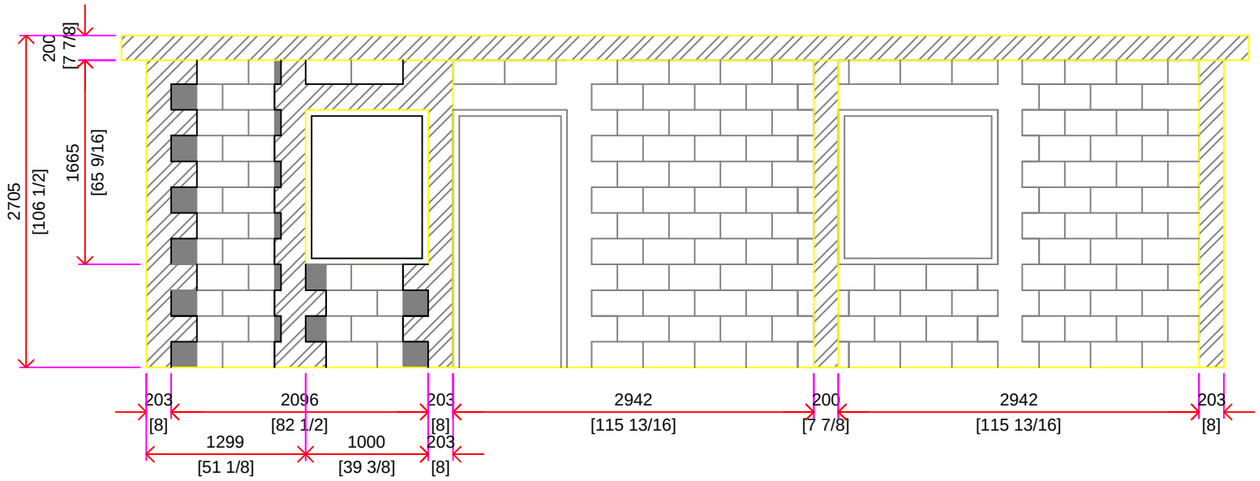
SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN	APPROVED
	ORIGINAL SIGNED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

A3

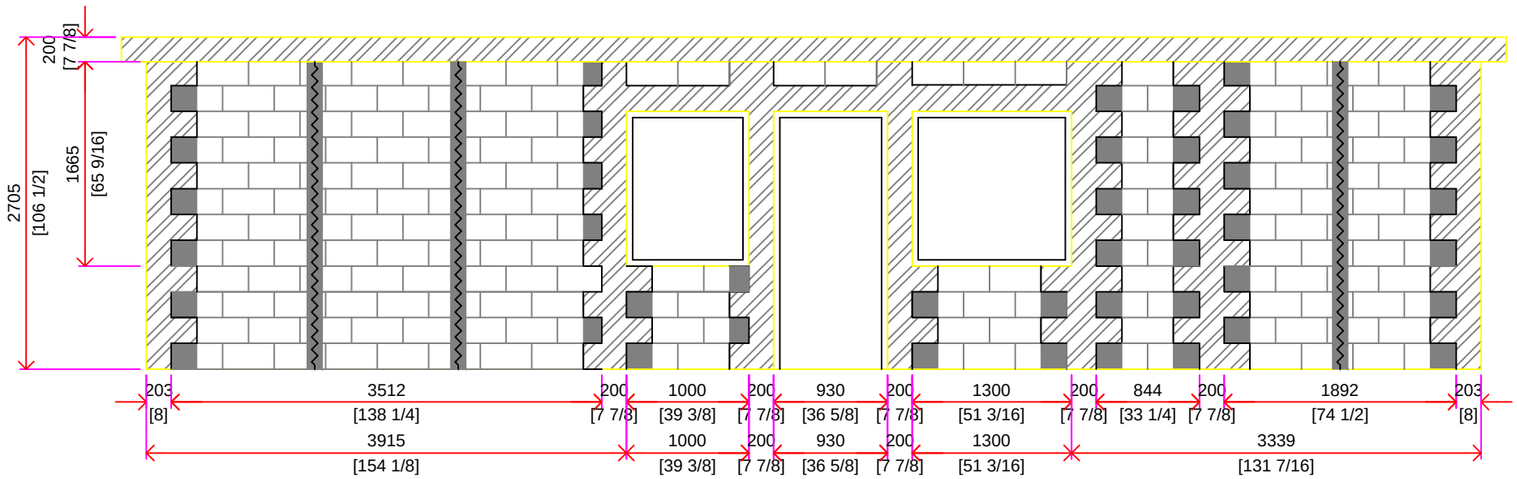
1



INFORMATION NOTE:

1. BLOCKWORK TO BE CONSTRUCTED IN LAYERS PRIOR TO POURING OF CONCRETE FRAME UP TO SAME LEVEL. THE CONCRETE FRAME IS TO BE CAST DIRECTLY AGAINST THE BLOCKWORK IN ORDER TO PROVIDE STRUCTURAL STRENGTH TO RESIST EARTHQUAKE LOADING.
2. ALL CONCRETE COLUMNS MINIMUM 200mm WIDTH. EDGES OF COLUMNS "CASTELATED"TO MARRY WITH BLOCKWORK.
3. CONCRETE TO BE POURED THROUGH A VOID OF BLOCKS AS INDICATED, TO TIE IN WITH COLUMNS.
4. THE 200mm THICK RING BEAMS AT EAVES LEVEL IS TO BE CAST DIRECTLY ONTO THE TOP OF THE COLUMNS AND BLOCKWORK WALLS, WITH FORMWORK TO CREATE THE OVERHANG.
5. THE ADDITIONAL WIDTH OF THE RINGBEAM ADDS STIFFNESS TO THE TOP OF THE WALL (FOR SEISMIC PROTECTION) BUT ALSO PROVIDES A ROBUST SOFFIT ALLOWING THE ROOF TO PROJECT AWAY FROM THE WALL.

2



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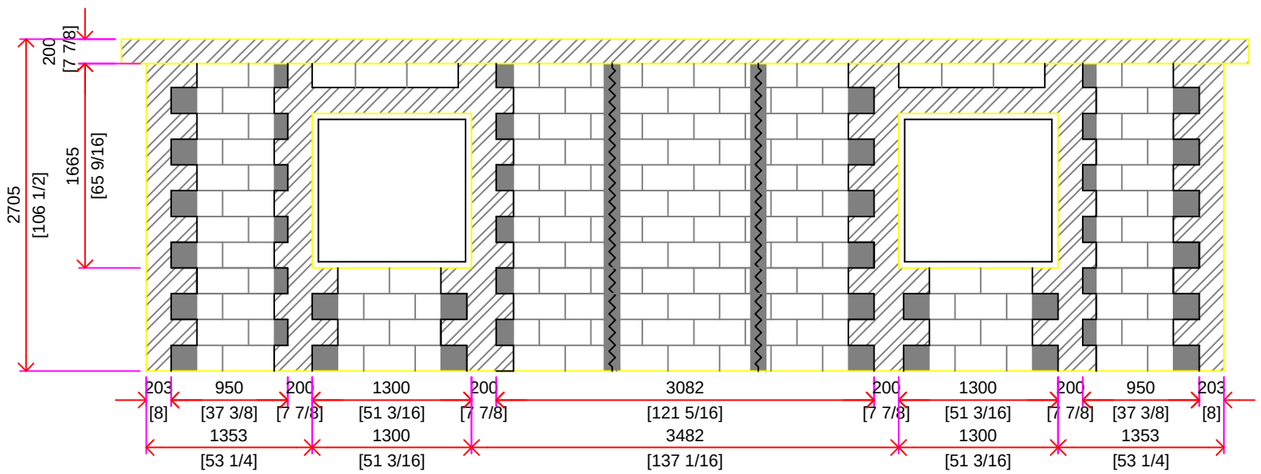
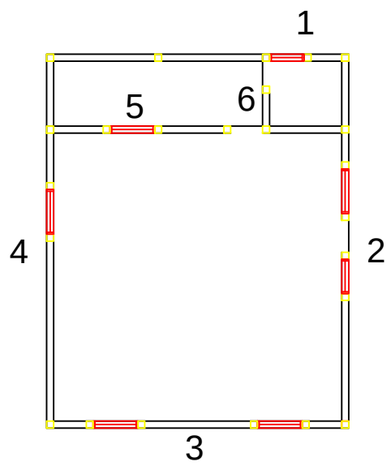




ASSOCIATED DRAWINGS

No.	TITLE
C/001	2 BEDROOM HOUSE ELEVATIONS
C/014	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 1)
C/015	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 2)
C/016	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 3)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. REBAR IN BLOCK HOLE TO BE FILLED WITH CONCRETE.

LEGEND

	REINFORCING STEEL AND CONCRETE INSIDE BLOCK
	VOID IN BLOCK FILLED WITH CONCRETE
	CONCRETE FRAME

AMENDMENTS

A	DESCRIPTION	DD MON YY	
SERIAL	DESCRIPTION	AUTH	DATE

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
COLUMN AND BLOCKWORK
ELEVATION 1

DRAWING No/CAD FILE
C/003

SCALE	DATE
1:50	04 SEP 15

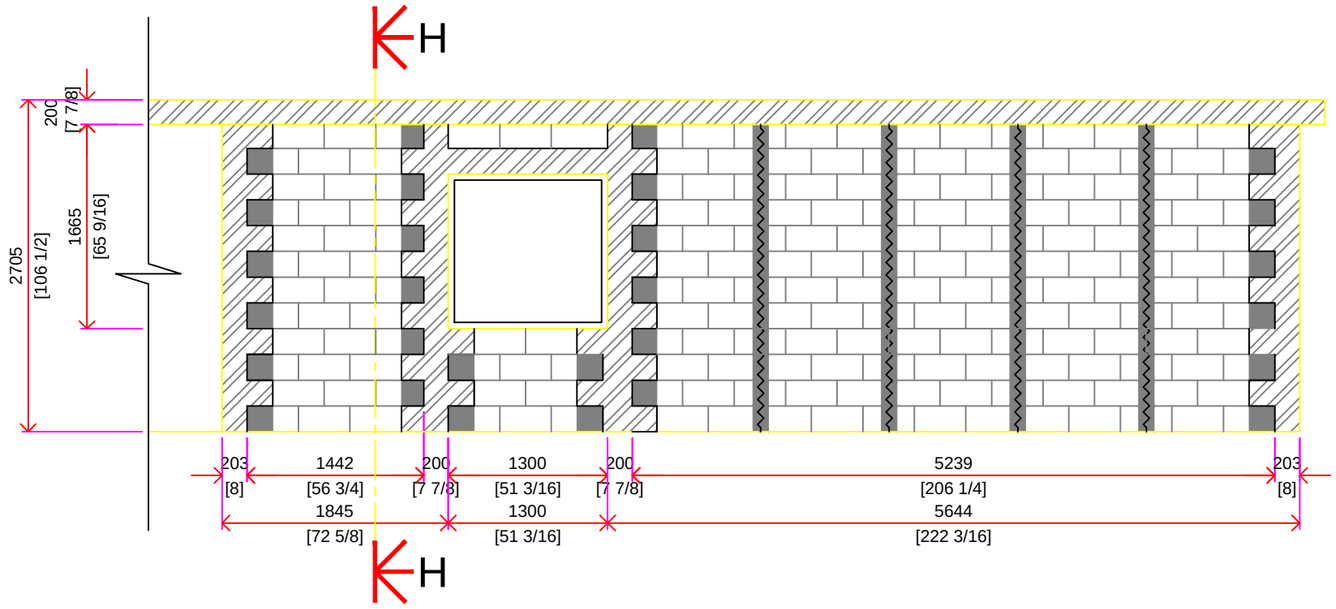
PROJECT OFFICER DESIGN	APPROVED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

A3

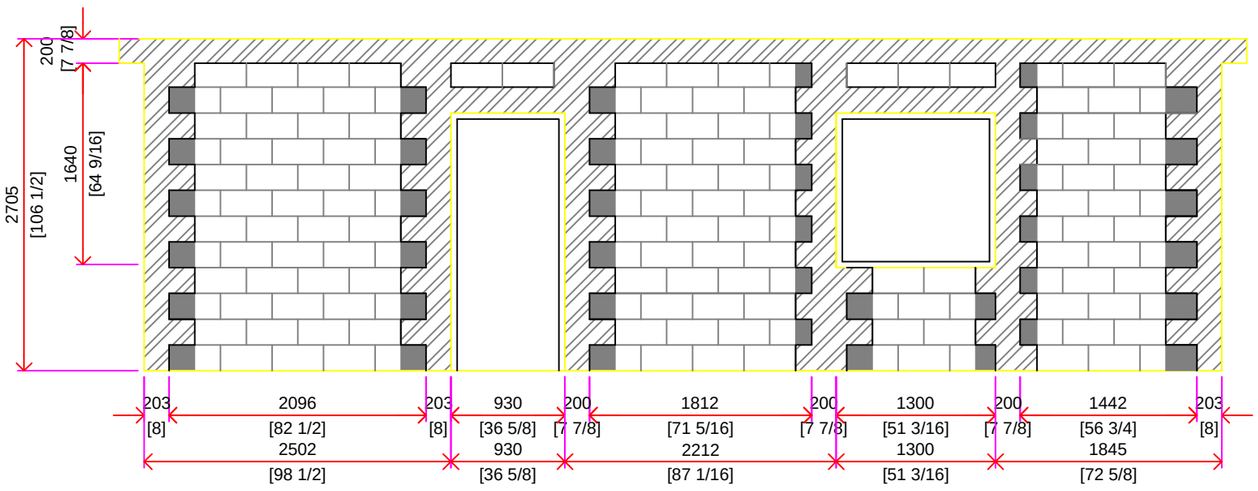
4



INFORMATION NOTE:

1. BLOCKWORK TO BE CONSTRUCTED IN LAYERS PRIOR TO POURING OF CONCRETE FRAME UP TO SAME LEVEL. THE CONCRETE FRAME IS TO BE CAST DIRECTLY AGAINST THE BLOCKWORK IN ORDER TO PROVIDE STRUCTURAL STRENGTH TO RESIST EARTHQUAKE LOADING.
2. ALL CONCRETE COLUMNS MINIMUM 200mm WIDTH. EDGES OF COLUMNS "CASTELATED"TO MARRY WITH BLOCKWORK.
3. CONCRETE TO BE POURED THROUGH A VOID OF BLOCKS AS INDICATED, TO TIE IN WITH COLUMNS.
4. THE 200mm THICK RING BEAMS AT EAVES LEVEL IS TO BE CAST DIRECTLY ONTO THE TOP OF THE COLUMNS AND BLOCKWORK WALLS, WITH FORMWORK TO CREATE THE OVERHANG.
5. THE ADDITIONAL WIDTH OF THE RINGBEAM ADDS STIFFNESS TO THE TOP OF THE WALL (FOR SEISMIC PROTECTION) BUT ALSO PROVIDES A ROBUST SOFFIT ALLOWING THE ROOF TO PROJECT AWAY FROM THE WALL.

5



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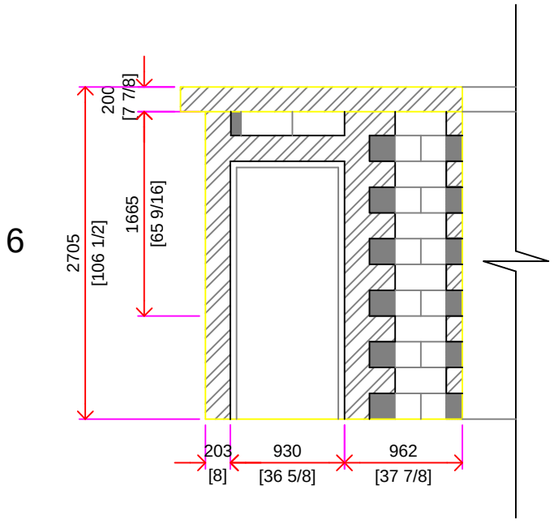
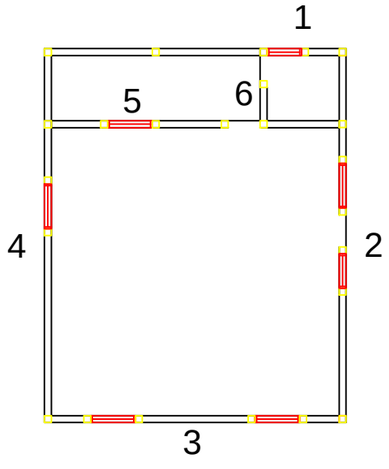




ASSOCIATED DRAWINGS

No.	TITLE
C/001	2 BEDROOM HOUSE ELEVATIONS
C/017	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 4)
C/018	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 5)
C/019	2 BEDROOM HOUSE REINFORCEMENT ELEVATIONS (WALL 6)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. REBAR IN BLOCK HOLE TO BE FILLED WITH CONCRETE.

LEGEND

	REINFORCING STEEL AND CONCRETE INSIDE BLOCK
	VOID IN BLOCK FILLED WITH CONCRETE
	CONCRETE FRAME

AMENDMENTS

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
COLUMN AND BLOCKWORK
ELEVATION 2

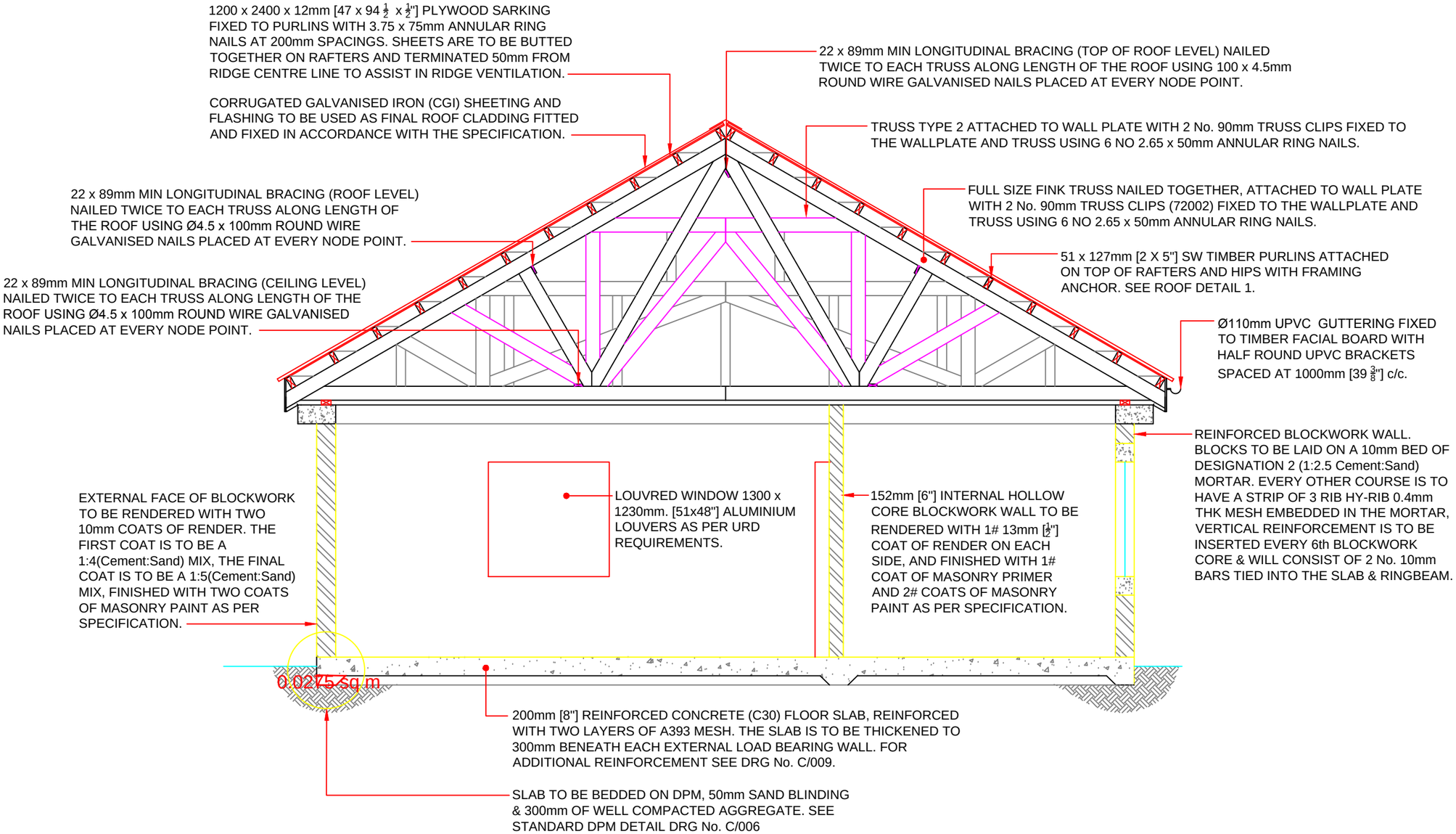
DRAWING No/CAD FILE
C/004

SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN	APPROVED
	ORIGINAL SIGNED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

A3



CUT A-A

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/006	2 BEDROOM HOUSE CUT B - B STANDARD DPM DETAIL
C/009	2 BEDROOM HOUSE RC SLAB TOP AND BOTTOM MESH CONFIGURATION
C/010	2 BEDROOM HOUSE RC SLAB DETAILS
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.
5. GUTTERING TO BE FIXED TO ONE SIDE OF BUILDING WHERE RAIN WATER HARVESTING TANK IS LOCATED.

A	DESCRIPTION	DD MON YY
SERIAL	DESCRIPTION	AUTH / DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
CUT A - A

DRAWING No/CAD FILE: C/005

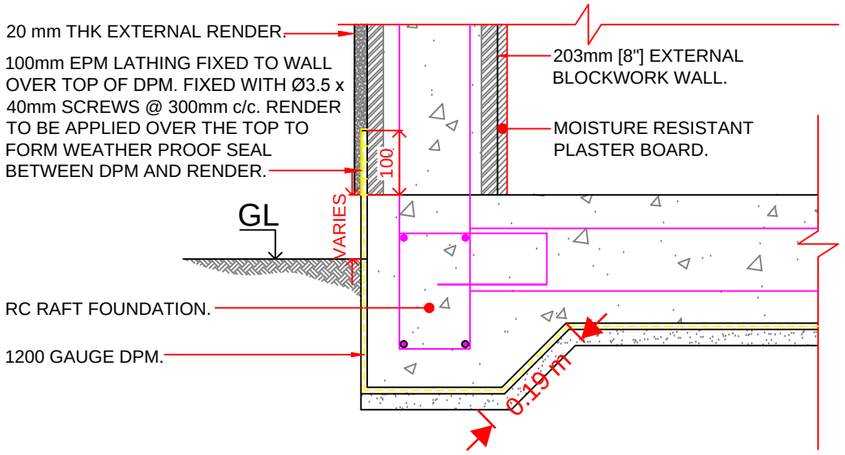
SCALE: 1:50

DATE: 04 SEP 15

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

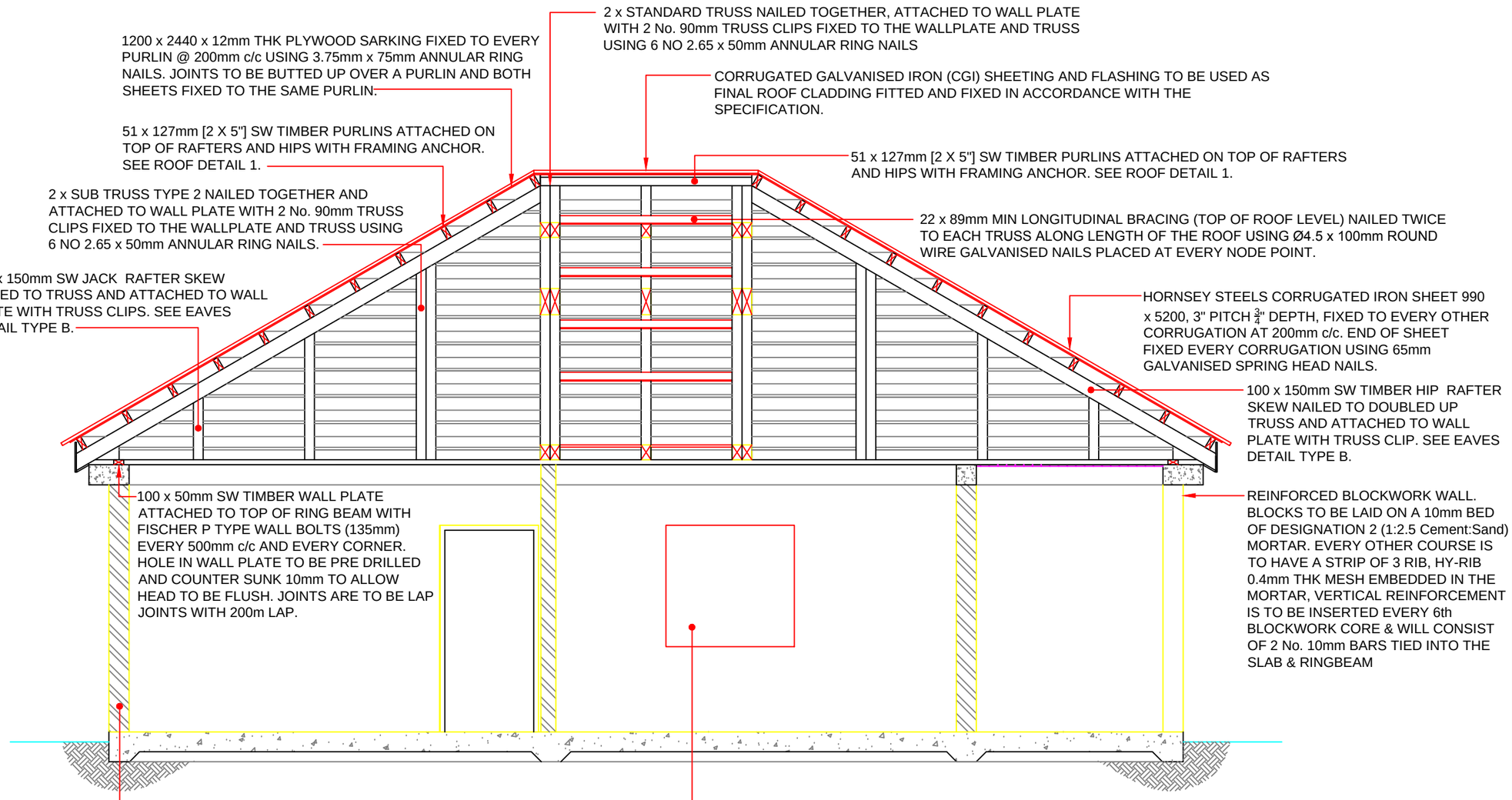
ORIGINAL SIGNED

A3



STANDARD DPM DETAIL

NTS



CUT B-B

A3

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/010	2 BEDROOM HOUSE RC SLAB DETAILS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.
5. GUTTERING TO BE FIXED TO ONE SIDE OF BUILDING WHERE RAIN WATER HARVESTING TANK IS LOCATED.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
CUT B - B
STANDARD DPM DETAIL

DRAWING No/CAD FILE
C/006

SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN	APPROVED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

HORNSEY STEELS CORRUGATED IRON SHEET 990 x 5200, 3" PITCH ¾" DEPTH, FIXED TO EVERY OTHER CORRUGATION COINCIDES WITH THE PURLIN. END OF SHEET FIXED EVERY OTHER CORRUGATION USING 65mm GALVANISED SPRING HEAD NAILS.

1200 x 2440 x 12mm THK PLYWOOD SARKING FIXED TO EVERY PURLIN @ 200mm c/c USING 3.75mm x 75mm ANNULAR RING NAILS. JOINTS TO BE BUTTED UP OVER A PURLIN AND BOTH SHEETS FIXED TO THE SAME PURLIN.

300 x 15mm PLY BOARD FASCIA NAILED TO END OF EVERY TRUSS ALONG THE LENGTH OF ROOF USING 2 No. 2.65 x 50mm ANNULAR RING NAILS. TO BE PAINTED AS PER SPEC.

130 x 15mm PLY BOARD SOFFIT NAILED TO UNDERSIDE OF EVERY TRUSS ALONG THE LENGTH OF ROOF USING 3 No. 2.65 x 50mm ANNULAR RING NAILS. TO BE PAINTED AS PER SPEC.

EXTERNAL FACE OF BLOCKWORK TO BE RENDERED WITH TWO 10mm COATS OF RENDER. THE FIRST COAT IS TO BE A 1:4(Cement:Sand) MIX, THE FINAL COAT IS TO BE A 1:5(Cement:Sand) MIX, FINISHED WITH TWO COATS OF MASONRY PAINT.

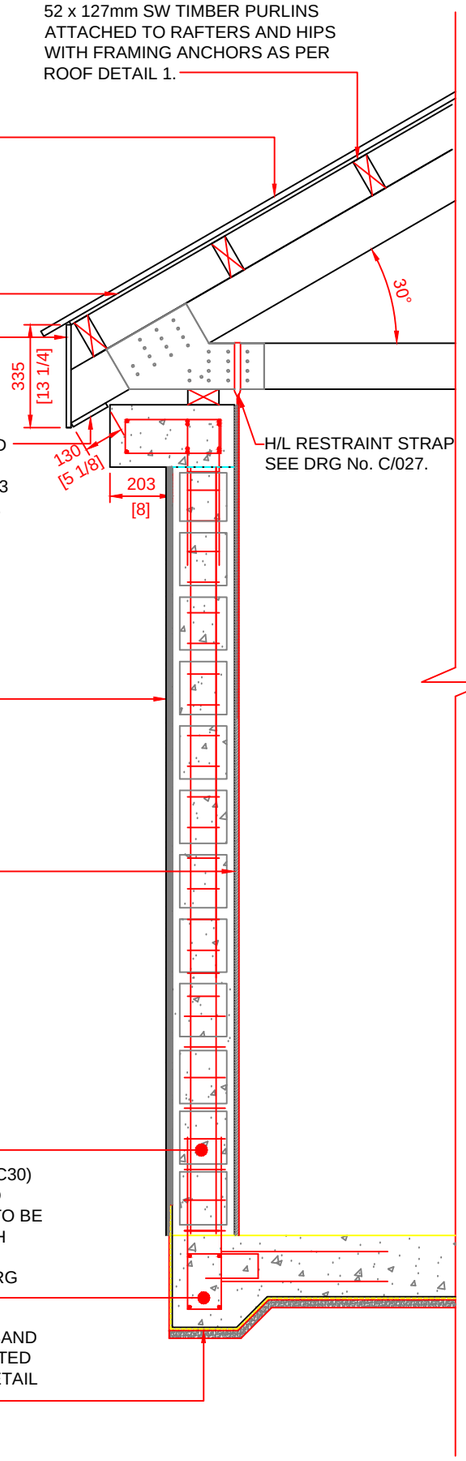
12.5mm [½"] MOISTURE RESISTANT PLASTERBOARD FITTED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. ALL JOINTS TO BE SEALED WITH TAPE AND COVERED WITH A 2mm [⅛"] WET PLASTER SKIM COAT.

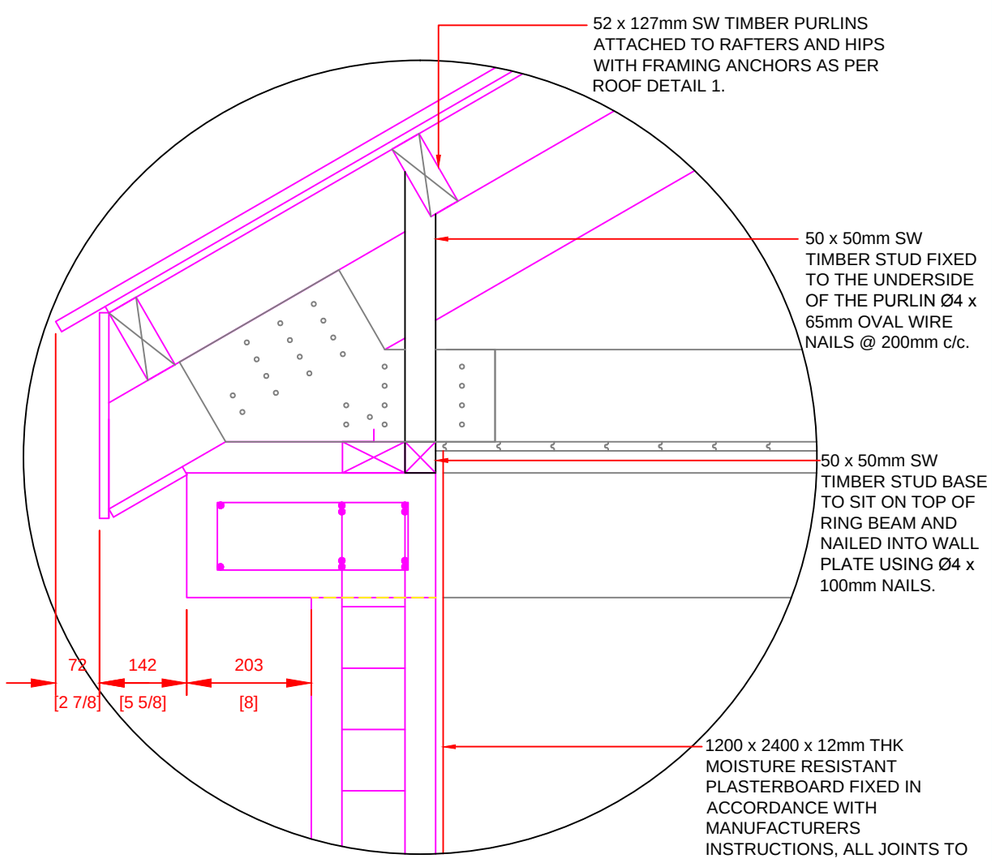
ALL BLOCKWORK CAVITIES ARE TO BE FILLED WITH CONCRETE AT EXTERAL / INTERNAL WALL JUNCTIONS TO SUPPORT 24 x 100mm [1" x 4"] SW TIMBER WALL PLATE.

200mm [8"] REINFORCED CONCRETE (C30) FLOOR SLAB, REINFORCED WITH TWO LAYERS OF A393 MESH. THE SLAB IS TO BE THICKENED TO 300mm BENEATH EACH EXTERNAL LOAD BEARING WALL. FOR ADDITIONAL REINFORCEMENT SEE DRG No.C/009.

SLAB TO BE BEDDED ON DPM, 50mm SAND BLINDING & 300mm OF WELL COMPACTED AGGREGATE. SEE STANDARD DPM DETAIL DRG No. C/006

52 x 127mm SW TIMBER PURLINS ATTACHED TO RAFTERS AND HIPS WITH FRAMING ANCHORS AS PER ROOF DETAIL 1.





SECTION H-H

SCALE 1:20

A3

ASSOCIATED DRAWINGS

No.	TITLE
C/006	2 BEDROOM HOUSE CUT B-B STANDARD DPM DETAIL
C/009	2 BEDROOM HOUSE RC SLAB TOP AND BOTTOM MESH CONFIGURATION
C/010	2 BEDROOM HOUSE RC SLAB DETAILS
C/017	2 BEDROOM HOUSE RC ELEVATION WALL 4
C/027	2 BEDROOM HOUSE ROOF DETAILS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. TRUSS COMPONENTS ARE TO BE JOINED WITH TRUSS PLATES SEE DRAWING C/024.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

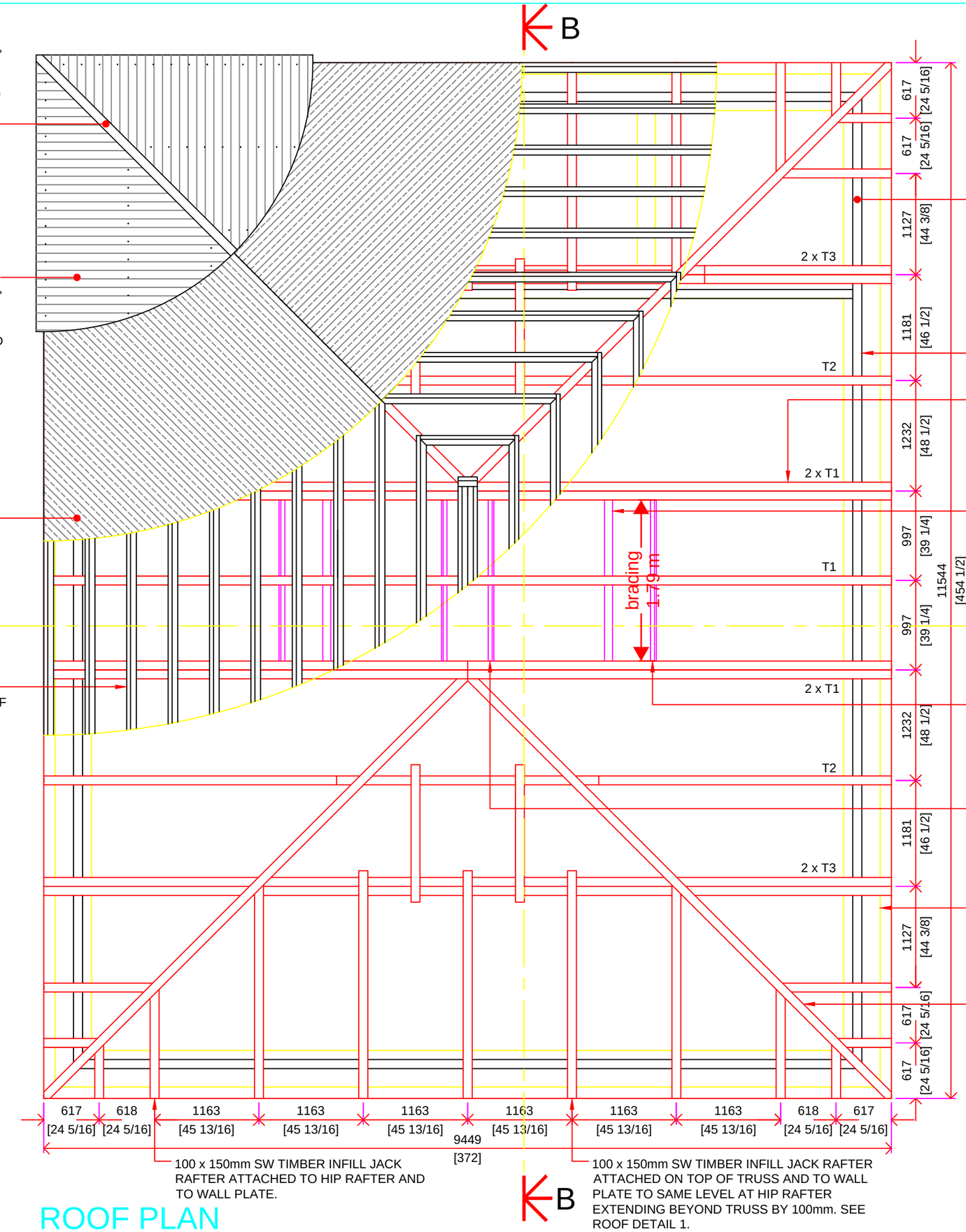
2 BEDROOM HOUSE
SECTION H - H

DRAWING No/CAD FILE
C/007

SCALE	DATE
1:20	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED	
DTO	SIG		DATE
CLK WKS	SIG		DATE
DRAWN	SIG		DATE
AMMENDED	SIG		DATE

ORIGINAL SIGNED



HIP FLASHING 200 x 200 x 3000mm, 0.7mm GAUGE GALVANIZED FLASHING FIXED EVERY 200mm USING 65mm GALVANISED SPRING HEAD NAILS. ENDS WITH 150mm LAPS.

VENTED RIDGE FLASHING: GALVANIZED ROOF FLASHING, 200 x 200 x 3000mm, 0.7mm GAUGE, 120° , FIXED AT EITHER END AND EVERY 200mm [8"] ON EITHER SIDE USING 65mm GALVANIZED SPRING HEAD NAILS.

HORNSEY STEELS CORRUGATED IRON SHEET 990 x 5200, 3" PITCH $\frac{3}{4}$" DEPTH, FIXED EVERY OTHER CORRUGATION COINCIDENT WITH THE PURLIN. END OF SHEET FIXED EVERY OTHER CORRUGATION USING 65mm [2.5"] GALVANISED SPRING HEAD NAILS.

1200 x 2440 x 12mm THK PLYWOOD SARKING FIXED TO EVERY PURLIN @ 200mm [8"] c/c USING 3.75mm x 75mm ANNULAR RING NAILS. JOINTS TO BE BUTTED UP OVER A PURLIN AND BOTH SHEETS FIXED TO THE SAME PURLIN.

51 x 127mm [2 X 5"] SW TIMBER PURLINS ATTACHED ON TOP OF RAFTERS AND HIPS AT WITH FRAMING ANCHOR. SEE ROOF DETAIL 1.

100 x 50mm SW TIMBER WALL PLATE ATTACHED TO TOP OF RING BEAM WITH FISCHER P TYPE WALL BOLTS (135mm) EVERY 500mm c/c AND EVERY CORNER. HOLE IN WALL PLATE TO BE PRE DRILLED AND COUNTER-SUNK 10mm TO ALLOW HEAD TO BE FLUSH. JOINTS ARE TO BE LAP JOINTS WITH 200mm LAP.

OUTSIDE EDGE OF BUILDING.

2 x STANDARD TRUSS NAILED TOGETHER, ATTACHED TO WALL PLATE WITH 2 No. 90mm TRUSS CLIPS FIXED TO THE WALLPLATE AND TRUSS USING 6 NO 2.65 x 50mm ANNULAR RING NAILS TO WALL PLATE AND 6 No. 2 x 25mm ANNULAR RING NAILS.

22 x 89mm MIN LONGITUDINAL BRACING (CEILING LEVEL) NAILED TWICE TO EACH TRUSS ALONG LENGTH OF THE ROOF USING Ø4.5 x 100mm ROUND WIRE GALVANISED NAILS PLACED AT EVERY NODE POINT.

22 x 89mm MIN LONGITUDINAL BRACING (ROOF LEVEL) NAILED TWICE TO EACH TRUSS ALONG LENGTH OF THE ROOF USING Ø4.5 x 100mm ROUND WIRE GALVANISED NAILS PLACED AT EVERY NODE POINT.

22 x 89mm MIN LONGITUDINAL BRACING (TOP OF ROOF LEVEL) NAILED TWICE TO EACH TRUSS ALONG LENGTH OF THE ROOF USING Ø4.5 x 100mm ROUND WIRE GALVANISED NAILS PLACED AT EVERY NODE POINT.

400 x 200mm REINFORCED CONCRETE RINGBEAM AT TOP OF WALL.

100 x 150mm SW TIMBER HIP RAFTER SKEW NAILED TO DOUBLED UP TRUSS AND ATTACHED TO WALL PLATE WITH TRUSS CLIP. SEE EAVES DETAIL TYPE B.

100 x 150mm SW TIMBER INFILL JACK RAFTER ATTACHED TO HIP RAFTER AND TO WALL PLATE.

100 x 150mm SW TIMBER INFILL JACK RAFTER ATTACHED ON TOP OF TRUSS AND TO WALL PLATE TO SAME LEVEL AT HIP RAFTER EXTENDING BEYOND TRUSS BY 100mm. SEE ROOF DETAIL 1.

ROOF PLAN

ASSOCIATED DRAWINGS

No.	TITLE
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.
5. GUTTERING TO BE FIXED TO ONE SIDE OF BUILDING WHERE RAIN WATER HARVESTING TANK IS LOCATED.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE ROOF PLAN

DRAWING No/CAD FILE: C/023

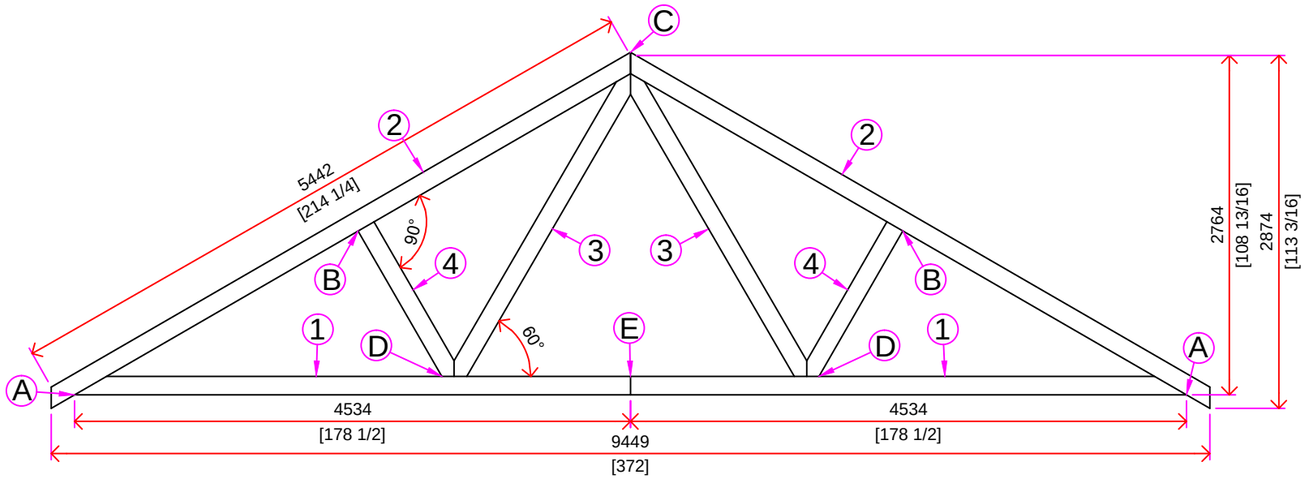
SCALE: 1:50

DATE: 04 SEP 15

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

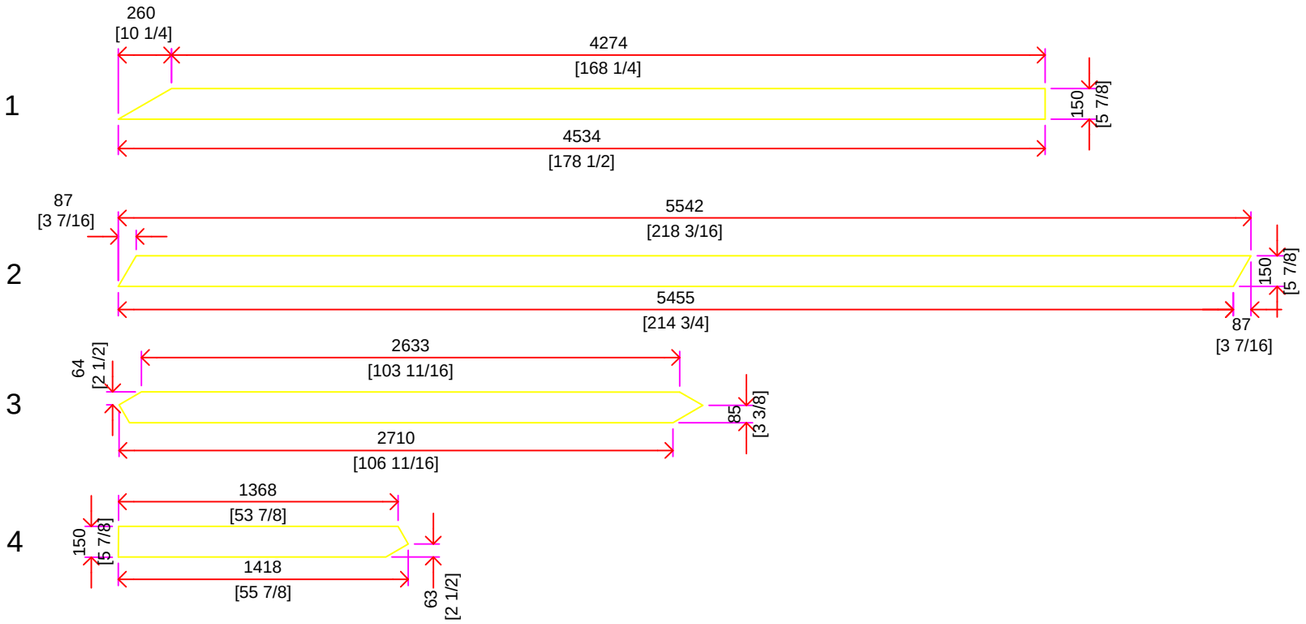
ORIGINAL SIGNED

A3



TRUSS 1 DETAIL

SCALE 1:50



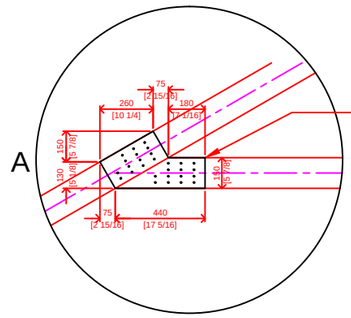
TRUSS 1 CUTTING SCHEDULE

SCALE 1:30

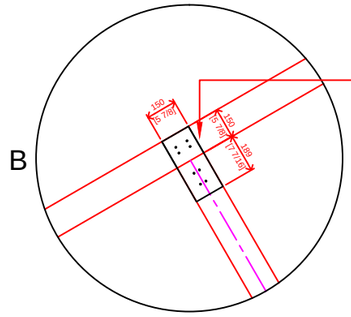
CUTTING SCHEDULE			
MEMBER	SIZE	LENGTH	NUMBER
1	100x150 [3 15/16 x5 7/8]	4534 [178 1/2]	2
2	100x150 [3 15/16 x5 7/8]	5455 [214 3/4]	2
3	100x150 [3 15/16 x5 7/8]	2710 [106 11/16]	2
4	100x150 [3 15/16 x5 7/8]	1418 [55 7/8]	2

NAIL PLATE DETAIL

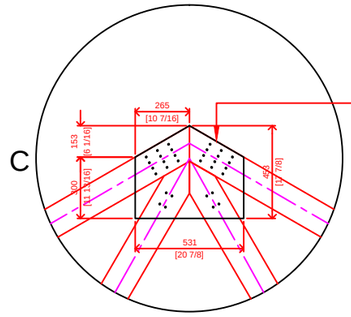
SCALE 1:30



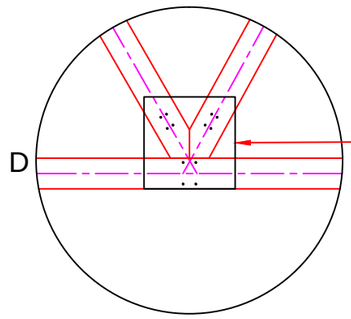
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 14 No 100 x 4.5mm NAILS TO EACH MEMBER.



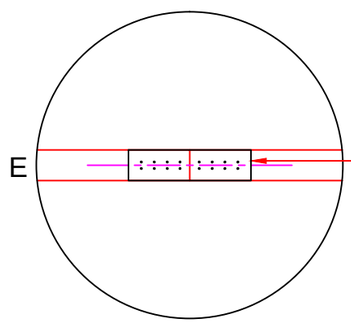
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 12 INTO UPPER MEMBERS AND 4 INTO LOWER MEMBERS No 100 x 4.5mm NAILS.



445 x 450 x 1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



600 x 150 x 1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 8 No 100 x 4.5mm NAILS TO EACH MEMBER.

ASSOCIATED DRAWINGS

No.	TITLE
C/005	2 BEDROOM HOUSE CUT A - A
C/023	2 BEDROOM HOUSE ROOF PLAN
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. TRUSS MEMBERS ARE TO BE CONNECTED WITH NAIL PLATES ON EACH SIDE.
5. NAILS ARE TO BE POSITIONED NO CLOSER THAN 53mm [2 1/16 "]TO THE END OF TRUSS MEMBERS TO PREVENT TIMBER ENDS SPLITTING.
6. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY
SERIAL	DESCRIPTION	AUTH / DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
TRUSS 1 DETAILS AND
CUTTING SCHEDULE

DRAWING No/CAD FILE
C/024

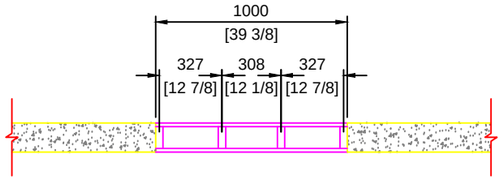
SCALE	DATE
AS SHOWN	17 JUL 15

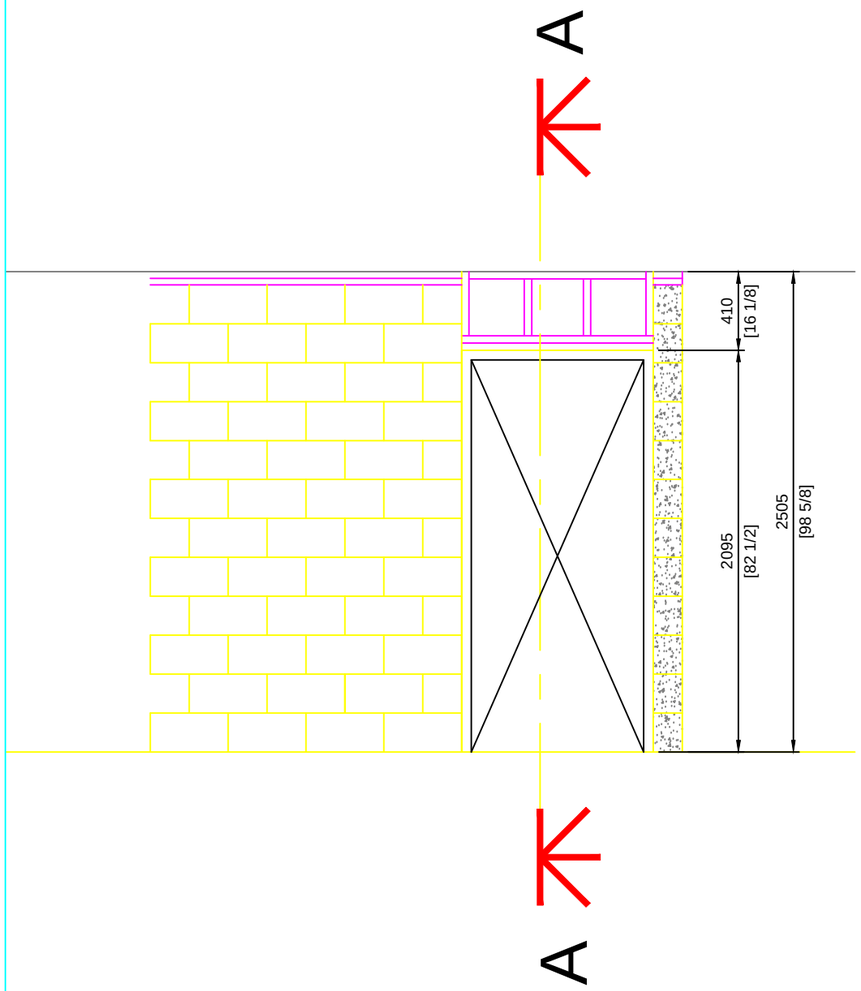
62 WKS GP RE

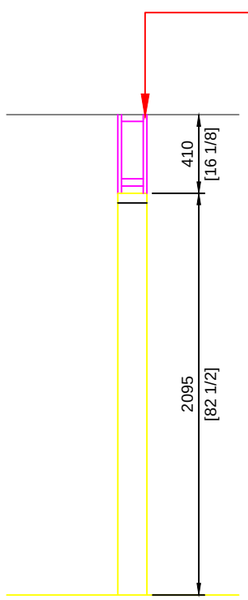
PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

A3







19mm [3/4"] TREATED PLY TO BE SECURED TO FABRICATED 114mm [4 1/2"] STUD AND RENDERED WITH 1# COAT PRIMER, AND 2# COATS SEMI-GLOSS EMULSION PAINT AS PER SPECIFICATION.

PARTITION DETAIL
SCALE 3/8"=1'-0"

A3

ASSOCIATED DRAWINGS

No.	TITLE
C/005	2 BEDROOM HOUSE CUT A - A
C/023	2 BEDROOM HOUSE ROOF PLAN
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. TRUSS MEMBERS ARE TO BE CONNECTED WITH NAIL PLATES ON EACH SIDE.
5. NAILS ARE TO BE POSITIONED NO CLOSER THAN 53mm [2 $\frac{1}{16}$ "]TO THE END OF TRUSS MEMBERS TO PREVENT TIMBER ENDS SPLITTING.
6. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY	
SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
PARTITION DETAIL

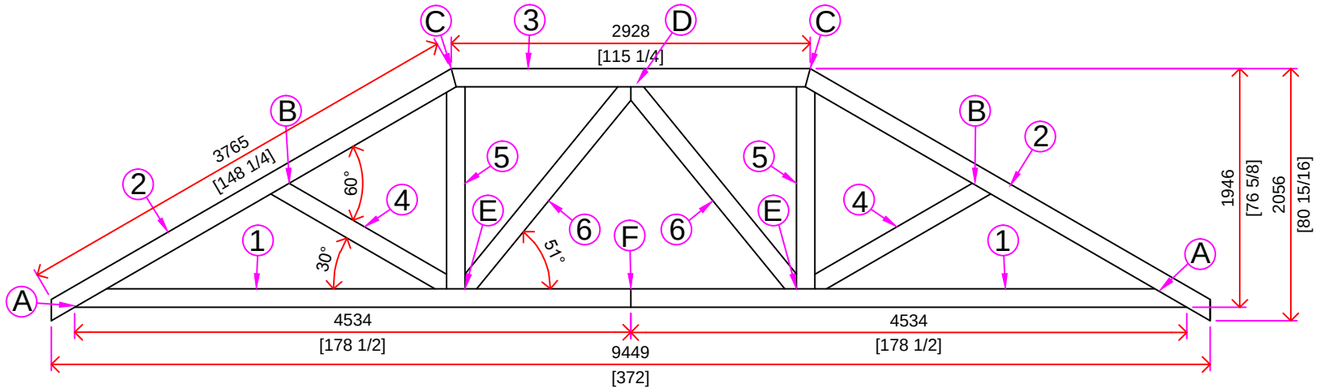
DRAWING No/CAD FILE
C/024

SCALE	DATE
AS SHOWN	17 JUL 15

62 WKS GP RE

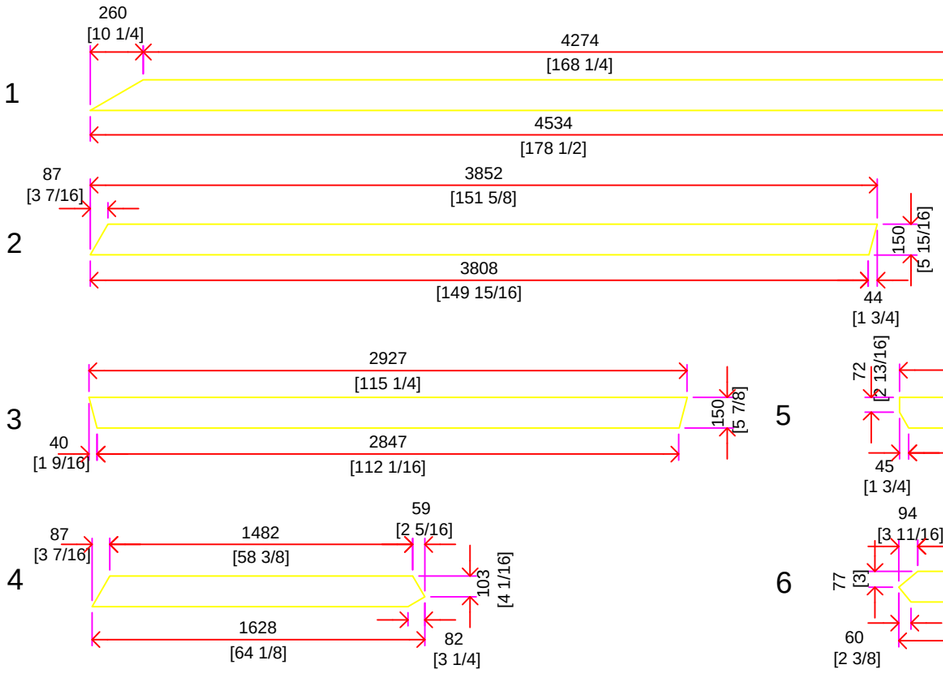
PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED



TRUSS 2 DETAIL

SCALE 1:50



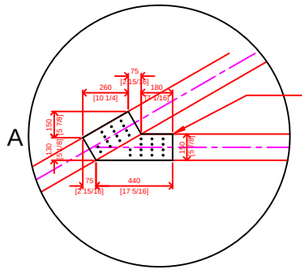
TRUSS 2 CUTTING SCHEDULE

SCALE 1:30

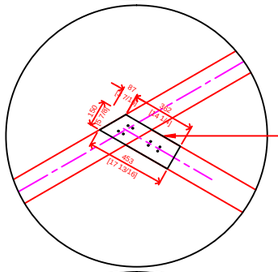
CUTTING SCHEDULE			
MEMBER	SIZE	LENGTH	NUMBER
1	100 x 150 [3 15/16]	4274 [168 1/4]	2
2	100 x 150 [3 15/16]	3852 [151 5/8]	2
3	100 x 150 [3 15/16]	2927 [115 1/4]	2
4	100 x 150 [3 15/16]	1628 [64 1/8]	2
5	100 x 150 [3 15/16]	1646 [64 13/16]	2
6	100 x 150 [3 15/16]	2130 [83 7/8]	2

NAIL PLATE DETAIL

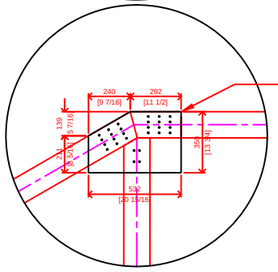
SCALE 1:30



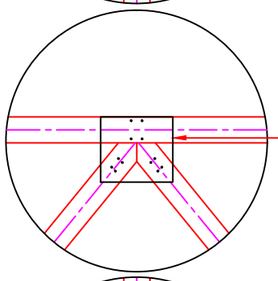
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 14 No 100 x 4.5mm NAILS TO EACH MEMBER.



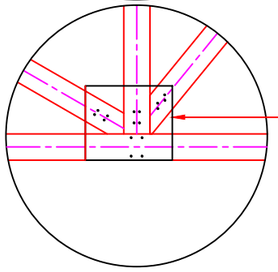
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



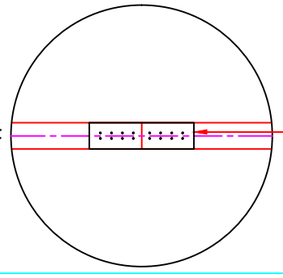
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 12 INTO UPPER MEMBERS AND 4 INTO LOWER MEMBER 100 x 4.5mm NAILS.



375 x 414 x 1.5mm STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



500 x 425 x 1.5mm STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



600 x 150 x 1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 8 No 100 x 4.5mm NAILS TO EACH MEMBER.

ASSOCIATED DRAWINGS

No.	TITLE
C/023	2 BEDROOM HOUSE ROOF PLAN
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. TRUSS MEMBERS ARE TO BE CONNECTED WITH NAIL PLATES ON EACH SIDE.
5. NAILS ARE TO BE POSITIONED NO CLOSER THAN 53mm [2 1/16"] TO THE END OF TRUSS MEMBERS TO PREVENT TIMBER ENDS SPLITTING.
6. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
TRUSS 2 DETAILS AND
CUTTING SCHEDULE

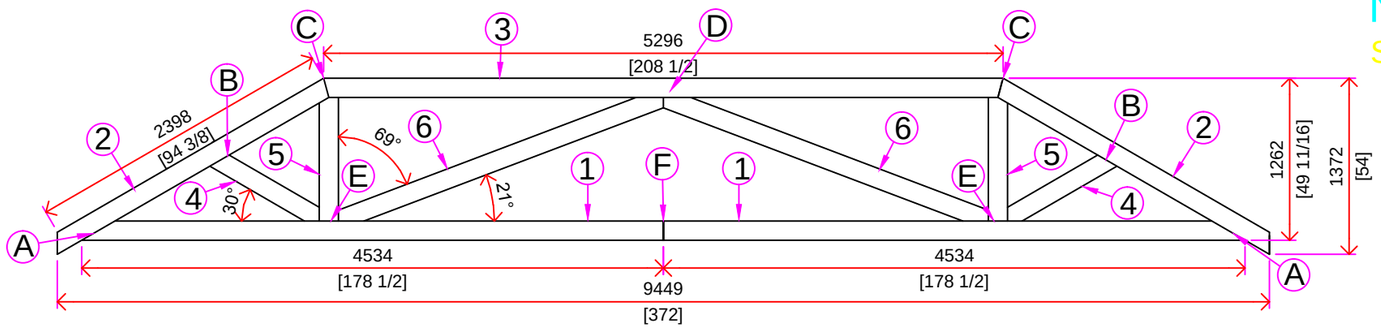
DRAWING No/CAD FILE
C/025

SCALE	DATE
AS SHOWN	17 JUL15

PROJECT OFFICER DESIGN		APPROVED	
DTO		SIG	DATE
CLK WKS		SIG	DATE
DRAWN		SIG	DATE
AMMENDED		SIG	DATE

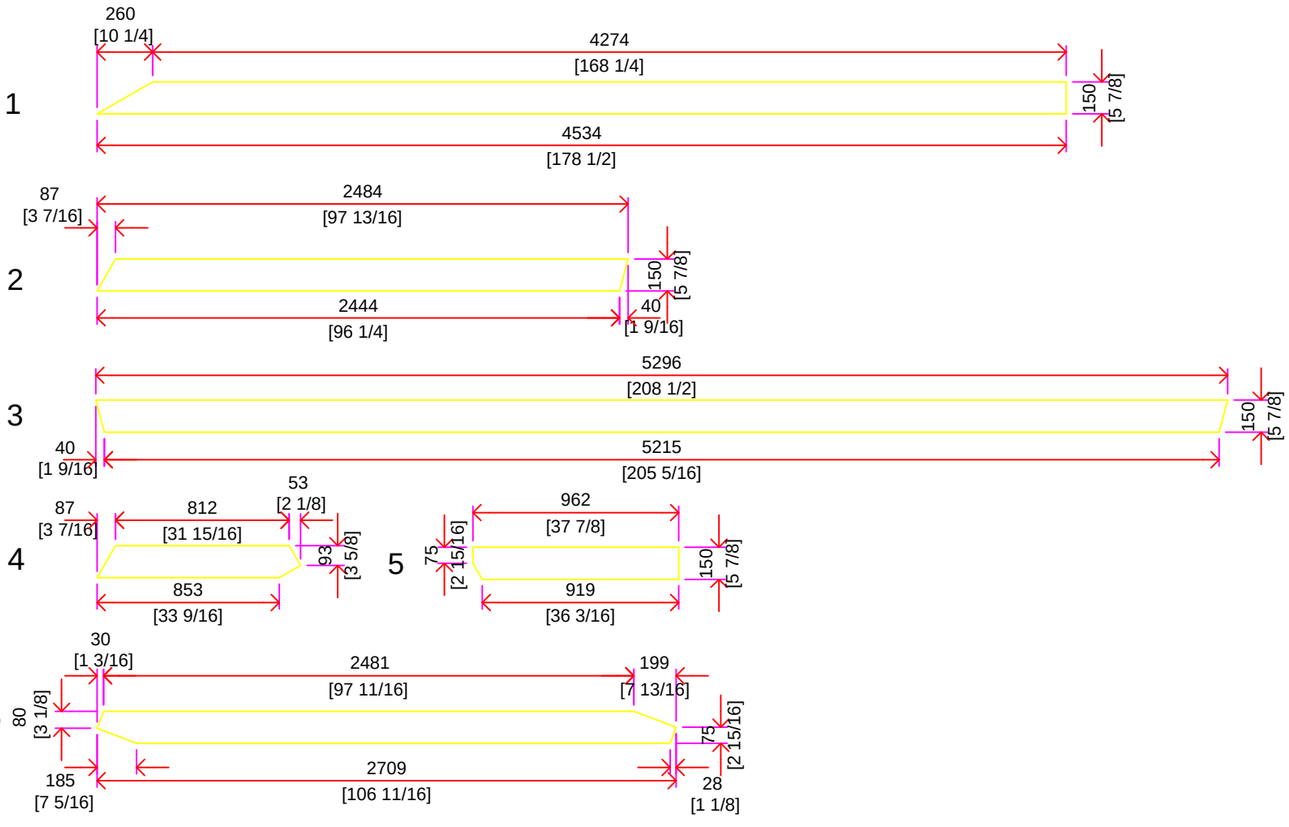
ORIGINAL SIGNED

A3



TRUSS 3 DETAIL

SCALE 1:50



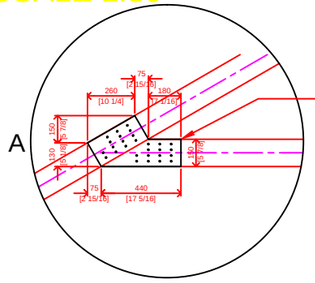
TRUSS 3 CUTTING SCHEDULE

SCALE 1:30

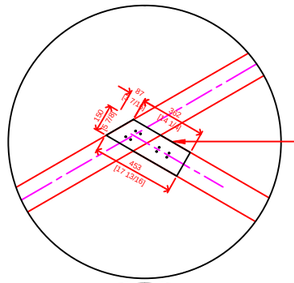
CUTTING SCHEDULE			
MEMBER	SIZE	LENGTH	NUMBER
1	100 x 150 [3 15/16]	4534 [178 1/2]	2
2	100 x 150 [3 15/16]	2484 [97 13/16]	2
3	100 x 150 [3 15/16]	5296 [208 1/2]	2
4	100 x 150 [3 15/16]	853 [33 9/16]	2
5	100 x 150 [3 15/16]	962 [37 7/8]	2
6	100 x 150 [3 15/16]	2709 [106 11/16]	2

NAIL PLATE DETAIL

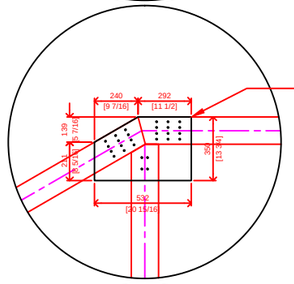
SCALE 1:30



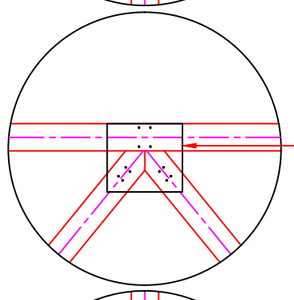
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 14 No 100 x 4.5mm NAILS TO EACH MEMBER.



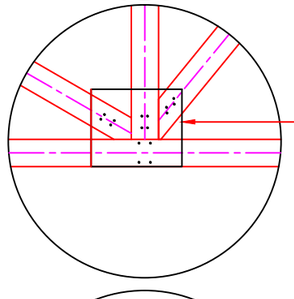
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



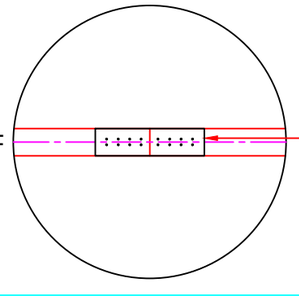
1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 12 INTO UPPER MEMBERS AND 4 INTO LOWER MEMBER 100 x 4.5mm NAILS.



375 x 414 x 1.5mm STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



500 x 425 x 1.5mm STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 4 No 100 x 4.5mm NAILS TO EACH MEMBER.



600 x 150 x 1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 8 No 100 x 4.5mm NAILS TO EACH MEMBER.

ASSOCIATED DRAWINGS

No.	TITLE
C/023	2 BEDROOM HOUSE ROOF PLAN
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. TRUSS MEMBERS ARE TO BE CONNECTED WITH NAIL PLATES ON EACH SIDE.
5. NAILS ARE TO BE POSITIONED NO CLOSER THAN 53mm [2 1/16 "]TO THE END OF TRUSS MEMBERS TO PREVENT TIMBER ENDS SPLITTING.
6. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY
SERIAL	DESCRIPTION	AUTH / DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
TRUSS 3 DETAILS AND
CUTTING SCHEDULE

DRAWING No/CAD FILE

C/026

SCALE	DATE
AS SHOWN	17 JUL15

PROJECT OFFICER DESIGN	APPROVED

DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

A3

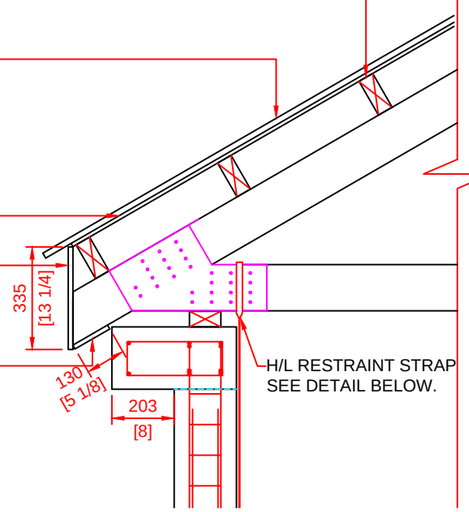
HORNSEY STEELS CORRUGATED IRON SHEET 990 x 5200, 3" PITCH $\frac{3}{4}$" DEPTH, FIXED TO EVERY OTHER CORRUGATION COINCIDES WITH THE PURLIN. END OF SHEET FIXED EVERY OTHER CORRUGATION USING 65mm GALVANISED SPRING HEAD NAILS.

1200 x 2440 x 12mm THK PLYWOOD SARKING FIXED TO EVERY PURLIN @ 200mm c/c USING 3.75mm x 75mm ANNULAR RING NAILS. JOINTS TO BE BUTTED UP OVER A PURLIN AND BOTH SHEETS FIXED TO THE SAME PURLIN.

335 x 15mm PLY BOARD FASCIA NAILED TO END OF EVERY TRUSS ALONG THE LENGTH OF ROOF USING 2 No. 2.65 x 50mm ANNULAR RING NAILS.

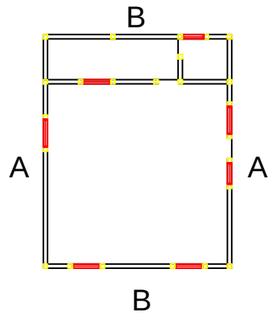
130 x 15mm PLY BOARD SOFFIT NAILED TO UNDERSIDE OF EVERY TRUSS ALONG THE LENGTH OF ROOF USING 3 No. 2.65 x 50mm ANNULAR RING NAILS.

52 x 127mm SW TIMBER PURLINS ATTACHED TO RAFTERS AND HIPS WITH FRAMING ANCHORS AS PER ROOF DETAIL 1.



H/L RESTRAINT STRAP SEE DETAIL BELOW.

EAVES DETAIL - TYPE A
SCALE 1:20

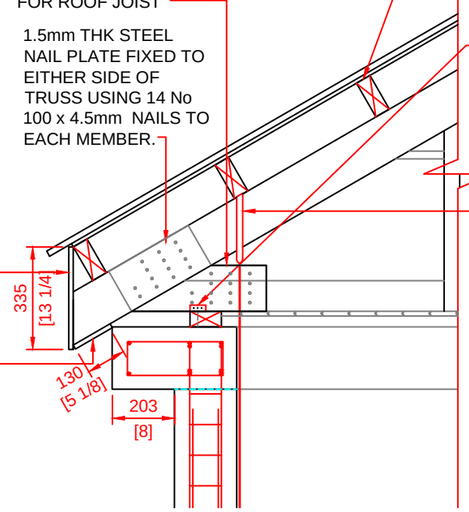


WEDGE REQUIRED TO PROVIDE SUPPORT FOR ROOF JOIST

1.5mm THK STEEL NAIL PLATE FIXED TO EITHER SIDE OF TRUSS USING 14 No 100 x 4.5mm NAILS TO EACH MEMBER.

335 x 15mm PLY BOARD FASCIA NAILED TO END OF EVERY TRUSS ALONG THE LENGTH OF ROOF.

130 x 15mm PLY BOARD SOFFIT NAILED TO UNDERSIDE OF EVERY TRUSS ALONG THE LENGTH OF ROOF.



52 x 127mm SW TIMBER PURLINS ATTACHED TO RAFTERS AND HIPS AT WITH FRAMING ANCHORS AS PER ROOF DETAIL 1.

TRUSS CLIP (72002) FIXED TO WALL PLATE USING 6 No. 2.65 x 50mm ANNULAR RING NAILS THROUGH PRE-DRILLED HOLES.FIXED TO HIP USING 6No. 2 x 25mmANNULAR RING NAILS INSERTED THROUGH PRE-DRILLED HOLES IN CLIP.

H/L RESTRAINT STRAP WITH BEND AND TWIST FIXED TO EVERY JACK RAFTER USING 3 No. 50 x 2.65mm ANNULAR RING NAILS. THE REMAINDER OF THE WALL STRAP FIXED TO THE RING BEAM/BLOCKWORK USING 6 No. 100 x 7.5mm CONCRETE SCREWS AT 150mm INTERVALS. 100mm TAIL SHOULD BE LEFT AT BASE. STRAP IS TO BE FLUSH WITH WALL TO ALLOW IT TO BE RENDERED OVER, SCREW 98755. (B1 51mm, 250 T1 mm, L 1200mm) SEE EAVES DETAIL TYPE A FOR REFERENCE.

EAVES DETAIL - TYPE B
SCALE 1:20

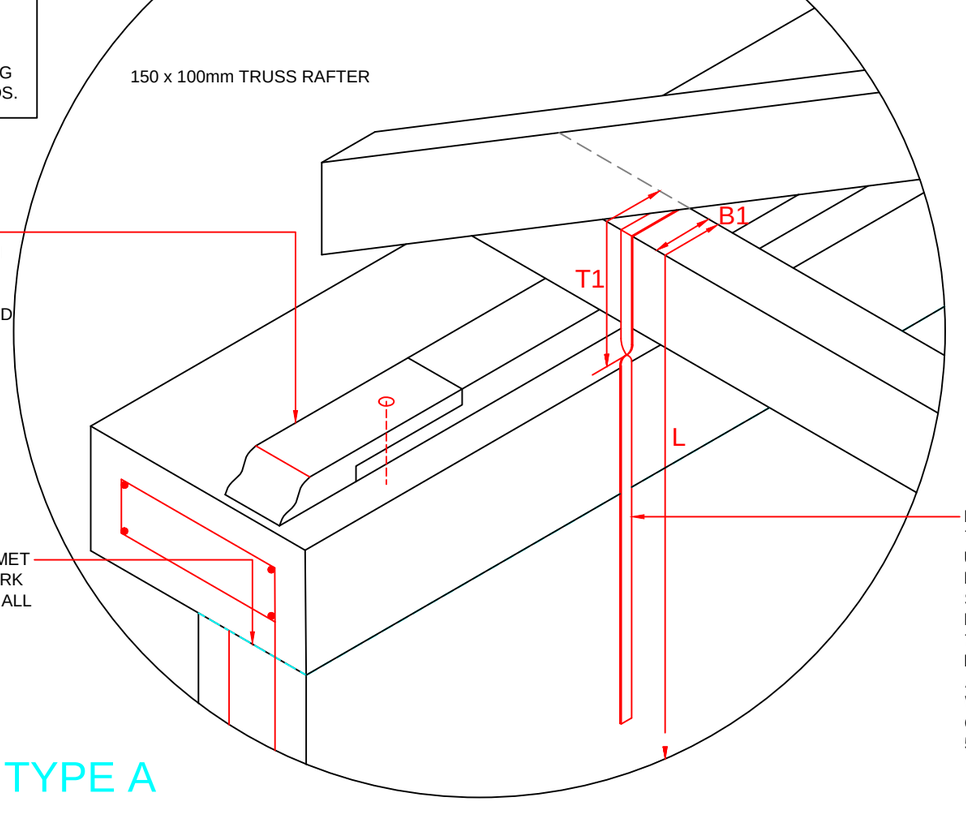
INFORMATION NOTE:

PROJECTION ON TOP RING BEAM IS THERE TO PREVENT THE FOLLOWING:
1. HORIZONTAL FLEXING IN THE WALL DURING SIESMIC ACTIVITY.
2. A REINFORCED CONCRETE EAVES TO RESIST AGAINST UPLIFT FORCES ACTING UPON EAVES DURING HURRICANE WINDS.

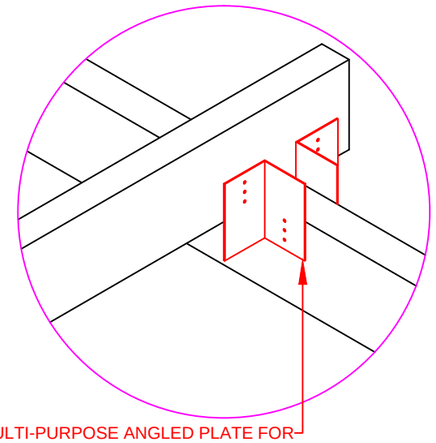
150 x 100mm TRUSS RAFTER

100 x 50mm SW TIMBER WALL PLATE ATTACHED TO TOP OF RING BEAM WITH FISCHER P TYPE WALL BOLTS (135mm) EVERY 500mm c/c AND EVERY CORNER. HOLE IN WALL PLATE TO BE PRE DRILLED AND COUNTER SUNK 10mm TO ALLOW HEAD TO BE FLUSH. JOINTS ARE TO BE LAP JOINTS WITH 200mm LAP.

HYRIB, Ø0.4mm THK, 178mm WIDE EXPAMET POSITIONED CENTRALLY ON BLOCK WORK TO PREVENT CONCRETE FROM FILLING ALL VOIDS



H/L RESTRAINT STRAP WITH BEND AND TWIST FIXED TO EVERY TRUSS RAFTER USING 3 No. 50 x 2.65mm ANNULAR RING NAILS. THE REMAINDER OF THE WALL STRAP FIXED TO THE RING BEAM/BLOCKWORK USING 6 No. 100 x 7.5mm CONCRETE SCREWS AT 150mm INTERVALS.100mm TAIL SHOULD BE LEFT AT BASE. STRAP IS TO BE FLUSH WITH WALL TO ALLOW IT TO BE RENDERED OVER. RESTRAINT STRAP DIMENSIONS: B1 51mm, T1 180mm, L 1200mm.



MULTI-PURPOSE ANGLED PLATE FOR CONNECTING TIMBER JOIST TO TIMBER PURLINS. FIXED USING 30 x 3.75mm SQUARE TWISTS NAILS USING ALL NAIL HOLES. THERE ARE TO BE 4 PER PURLIN/TRUSS INTERSECTION AND 2 ON EACH INFILL JACK RAFTER.

ROOF DETAIL 1
SCALE 1:10

EAVES DETAIL - TYPE A
SCALE 1:10

A3

ASSOCIATED DRAWINGS

No.	TITLE
C/023	2 BEDROOM HOUSE ROOF PLAN
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/028	2 BEDROOM HOUSE VERANDA ROOF PLAN CUT F - F AND CUT G-G

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. PLASTERBOARD TO ROOF FIXING OMITTED FOR CLARITY. SEE DRAWING NO. 62/42523/C/### FOR DETAIL.

A	DESCRIPTION	DD MON YY	
SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE ROOF DETAILS

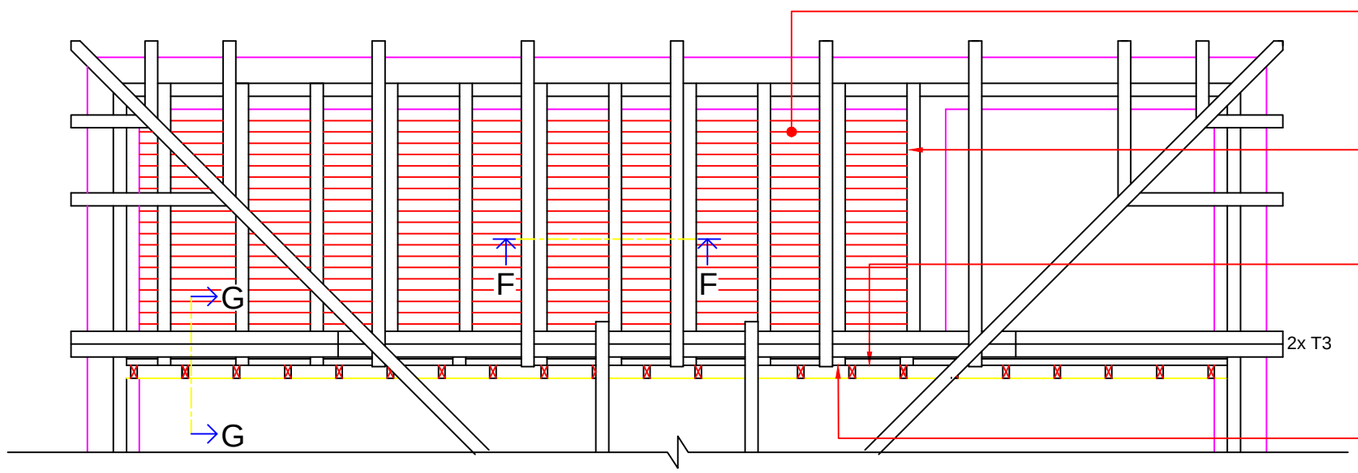
DRAWING No/CAD FILE

C/027

SCALE	DATE
AS SHOWN	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED	
DTO	SIG		DATE
CLK WKS	SIG		DATE
DRAWN	SIG		DATE
AMMENDED	SIG		DATE

ORIGINAL SIGNED



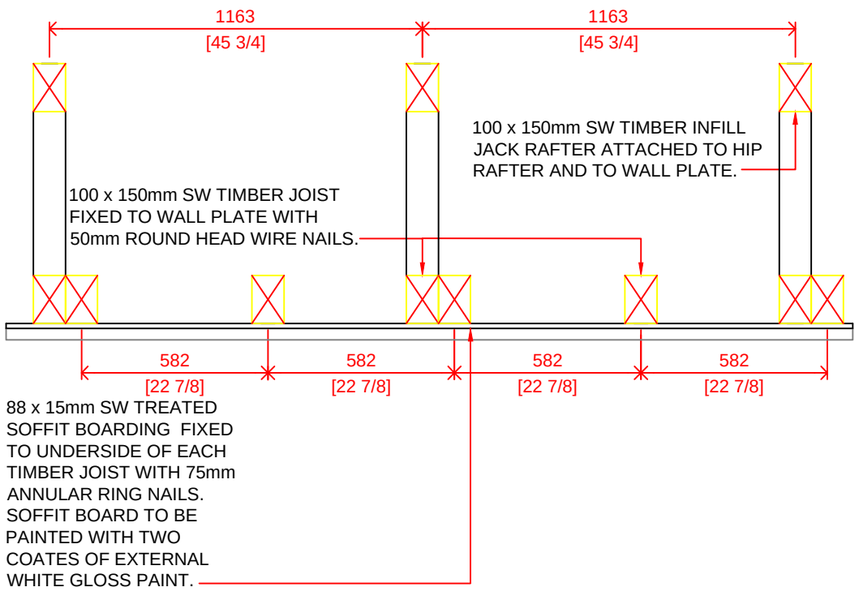
88 x 15mm [$3\frac{1}{2}$ x $\frac{1}{2}$"] SW TREATED SOFFIT BOARDING FIXED TO UNDERSIDE OF EACH TIMBER JOIST WITH 75mm ANNULAR RING NAILS. SOFFIT BOARD TO BE PAINTED WITH TWO COATES OF EXTERNAL WHITE GLOSS PAINT.

100 x 150mm SW TIMBER JOIST FIXED TO WALL PLATE WITH 50mm ROUND HEAD WIRE NAILS.

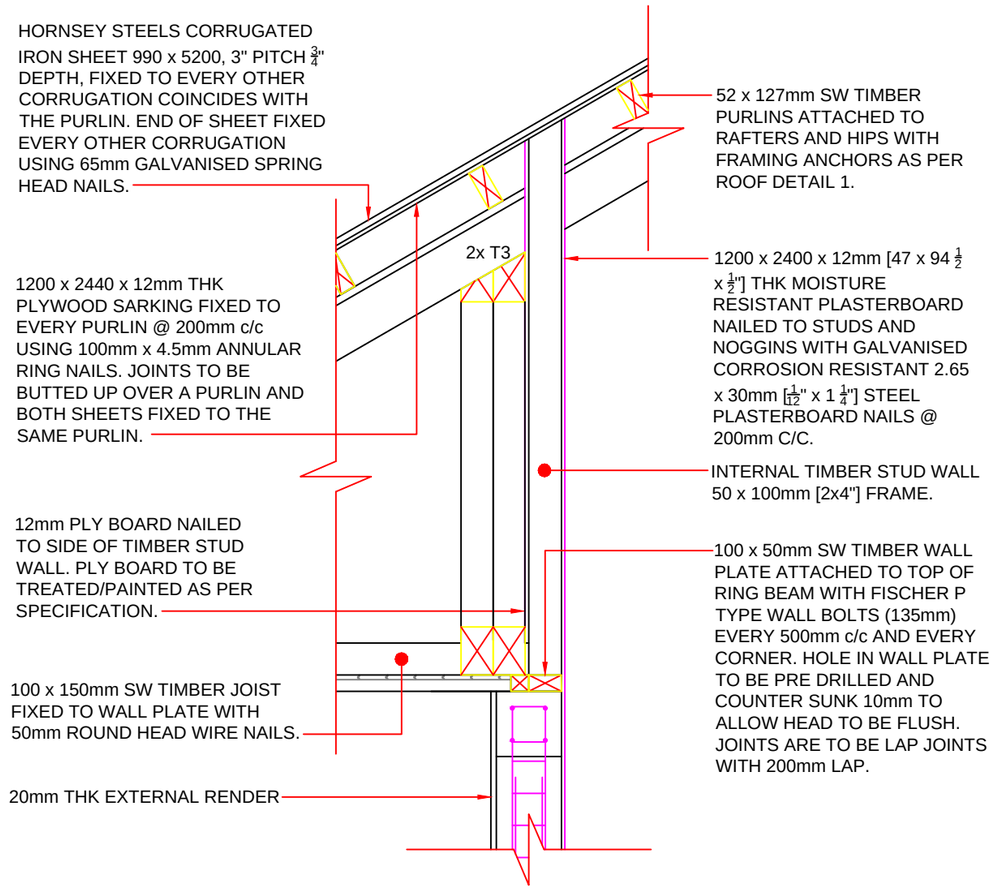
100 x 50mm SW TIMBER WALL PLATE ATTACHED TO TOP OF RING BEAM WITH FISCHER P TYPE WALL BOLTS (135mm) EVERY 500mm c/c AND EVERY CORNER. HOLE IN WALL PLATE TO BE PRE DRILLED AND COUNTER SUNK 10mm TO ALLOW HEAD TO BE FLUSH. JOINTS ARE TO BE LAP JOINTS WITH 200m LAP.

100 x 150mm SW TIMBER INFILL JOIST FIXED TO WALL PLATE WITH 50mm ROUND HEAD WIRE NAILS.

VERANDA ROOF PLAN



CUT F-F



CUT G-G

ASSOCIATED DRAWINGS

No.	TITLE
C/005	2 BEDROOM HOUSE CUT A - A
C/024	2 BEDROOM HOUSE TRUSS 1 DETAILS AND CUTTING SCHEDULE
C/025	2 BEDROOM HOUSE TRUSS 2 DETAILS AND CUTTING SCHEDULE
C/026	2 BEDROOM HOUSE TRUSS 3 DETAILS AND CUTTING SCHEDULE
C/027	2 BEDROOM HOUSE ROOF DETAILS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY
SERIAL	DESCRIPTION	AUTH / DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
VERANDA ROOF PLAN
CUT F - F AND CUT G-G

DRAWING No/CAD FILE

C/028

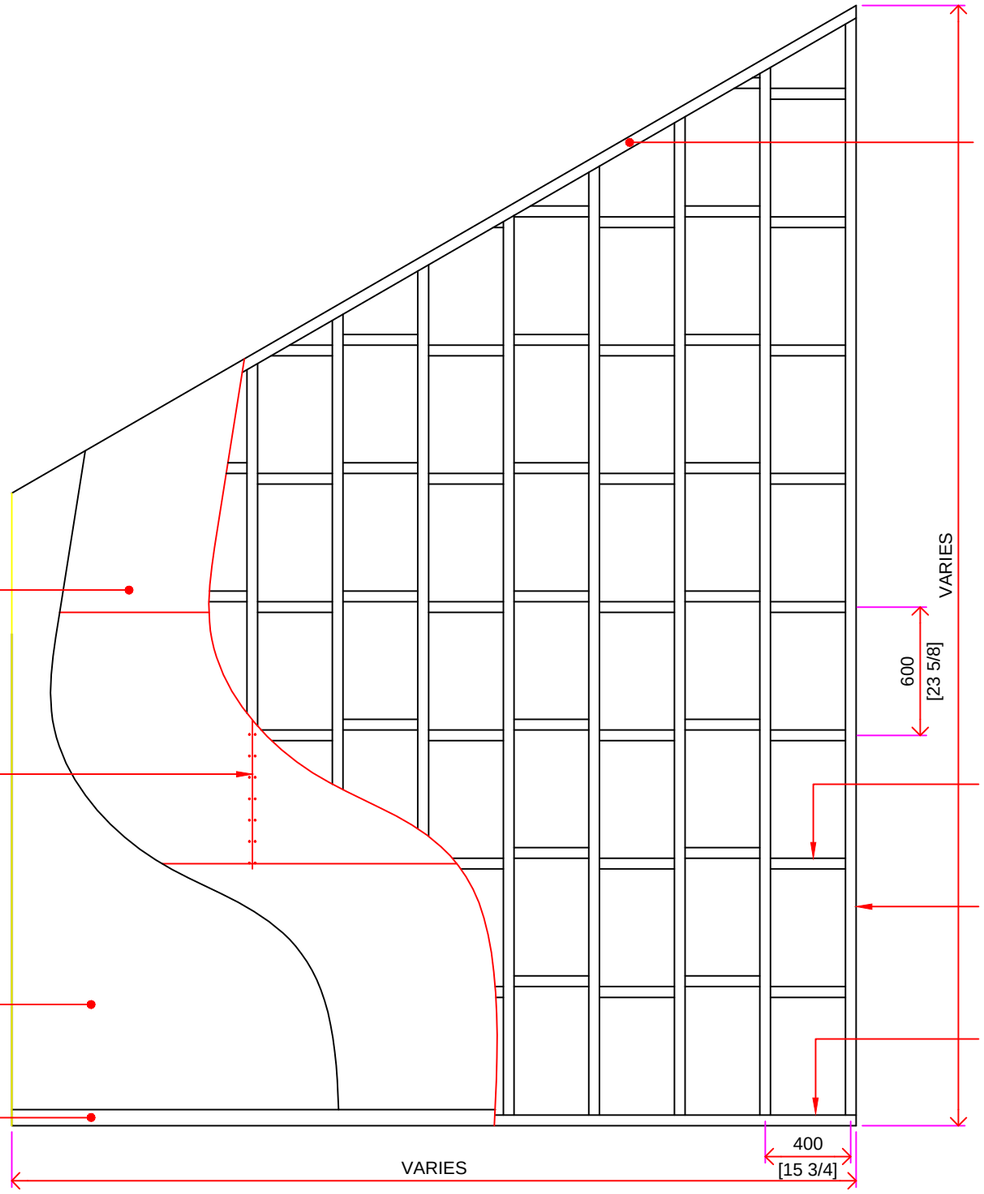
SCALE	DATE
1:50	04 SEP 15

PROJECT OFFICER DESIGN	APPROVED

DTO		SIG	DATE
CLK WKS		SIG	DATE
DRAWN		SIG	DATE
AMMENDED		SIG	DATE

ORIGINAL SIGNED

A3



TYPICAL STUD WALL

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/030	2 BEDROOM HOUSE TYPICAL STUD WALL OPENING
C/031	2 BEDROOM HOUSE STUD WALL JUNCTIONS AND SOLE PLATE JOINTS
C/032	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 1
C/033	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 2
C/034	2 BEDROOM HOUSE TYPICAL STUD WALL FIXING DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
TYPICAL STUD WALL

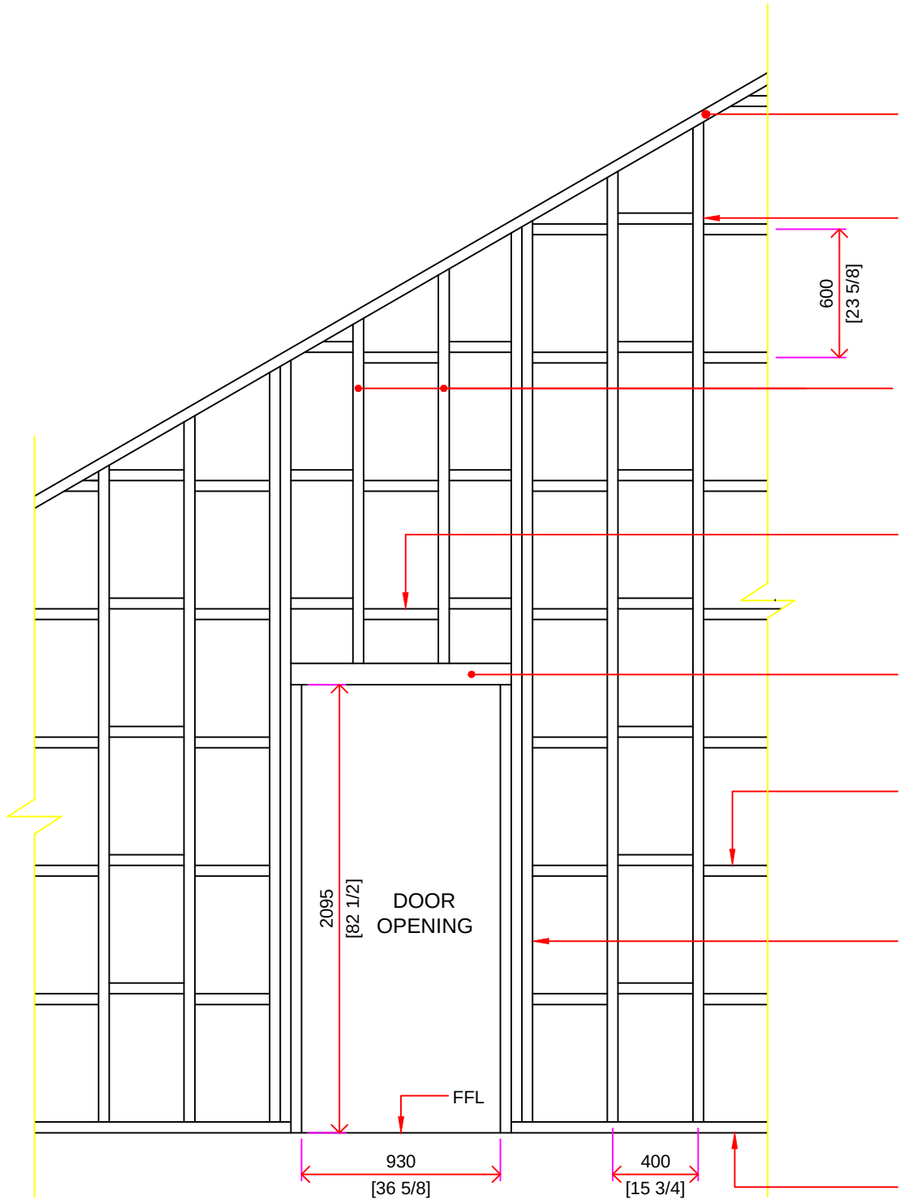
DRAWING No/CAD FILE
C/029

SCALE	DATE
NTS	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

A3



101 x 51 mm [4" x 2"] SW TIMBER TOP RAIL FIXED TO BOTH SIDES OF EACH PURLIN WITH 40 x 40 x 40mm GALVANISED STEEL ANGLE BRACKETS.

101 x 51 mm [4" x 2"] SW TIMBER STUDS FIXED BETWEEN SOLE PLATE AND TOP PLATE SKEW NAILED IN PLACE @ 400mm [15 3/4"] c/c.

101 x 51mm [4" x 2"] SW TIMBER CRIPPLE STUDS FIXED BETWEEN LINTEL AND TOP RAIL WITH 51mm [2"] ROUND HEAD WIRE NAILS.

101 x 51mm [4" x 2"] SW TIMBER NOGGINS SPACED VERTICALLY @ 600mm [15 3/42"] c/c FIXED BETWEEN TIMBER STUDS, LENGTH CUT TO FIT ABOVE OPENINGS.

101 x 51mm [4" x 2"] TIMBER ON ITS SIDE TO ACT AS LINTEL.

101 x 51 x 349mm [4" x 2" x 7"] SW TIMBER NOGGINS SPACED VERTICALLY @ 600mm [12"] C/C FIXED BETWEEN TIMBER STUDS WITH 51mm [2"] ROUND HEAD WIRE NAILS.

101 x 51 mm [4" x 2"] SW TIMBER STUDS DOUBLED UP EITHER SIDE OF OPENINGS.

101 x 51mm [4" x 2"] SW TIMBER CRIPPLE STUDS FIXED TO DOUBLED UP STUDS WITH 75mm [3"] ROUND HEAD WIRE NAILS.

101 x 51 mm [4" x 2"] SW TIMBER SOLE PLATE FIXED IN CONCRETE SLAB WITH 75mm [3"] STEEL MASONRY NAILS @ 300mm [12"] c/c.

TYPICAL STUD WALL OPENING

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/029	2 BEDROOM HOUSE TYPICAL STUD WALL
C/031	2 BEDROOM HOUSE STUD WALL JUNCTIONS AND SOLE PLATE JOINTS
C/032	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 1
C/033	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 2
C/034	2 BEDROOM HOUSE TYPICAL STUD WALL FIXING DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

LEGEND

FFL = FINISHED FLOOR LEVEL

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
TYPICAL STUD WALL
OPENING

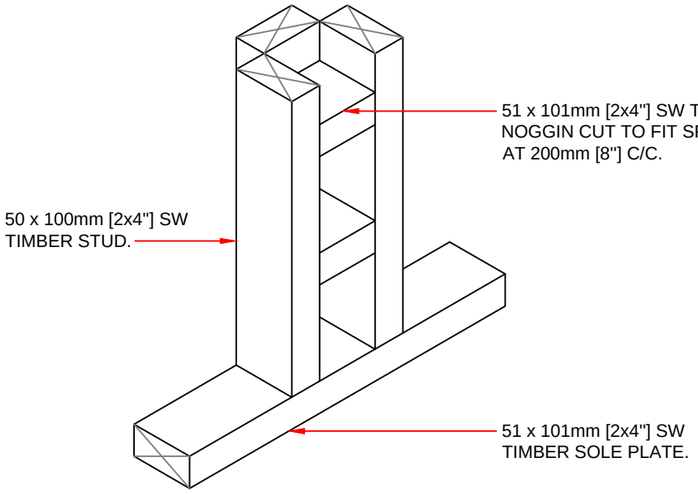
DRAWING No/CAD FILE
C/030

SCALE	DATE
NTS	04 SEP 15

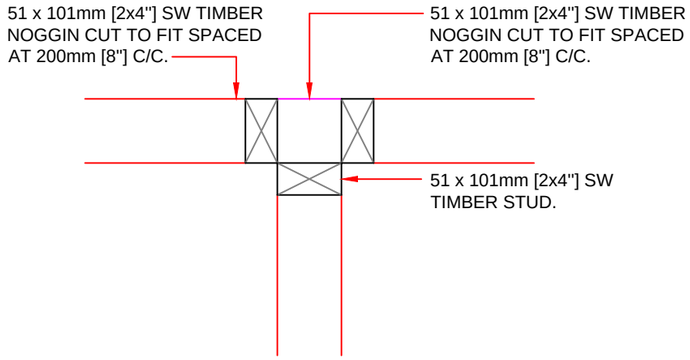
PROJECT OFFICER DESIGN		APPROVED	
DTO	SIG		DATE
CLK WKS	SIG		DATE
DRAWN	SIG		DATE
AMMENDED	SIG		DATE

ORIGINAL SIGNED

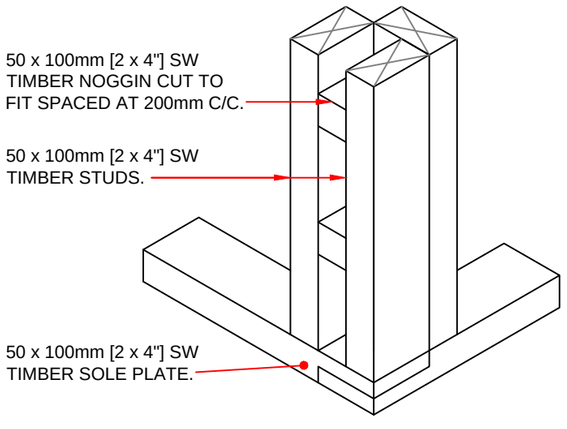
A3



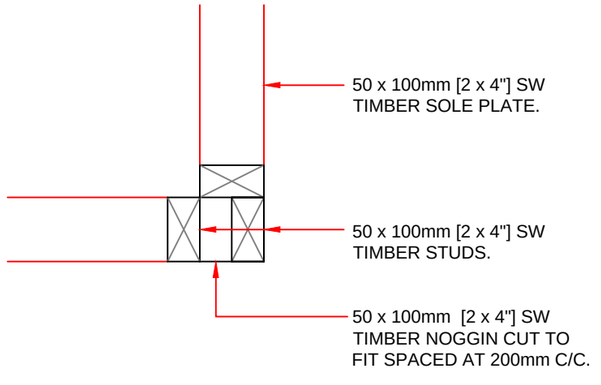
STUD WALL JUNCTION



PLAN VIEW



STUD WALL JUNCTION



PLAN VIEW

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/029	2 BEDROOM HOUSE TYPICAL STUD WALL
C/030	2 BEDROOM HOUSE TYPICAL STUD WALL OPENING
C/032	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 1
C/033	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 2
C/034	2 BEDROOM HOUSE TYPICAL STUD WALL FIXING DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

AMENDMENTS

PROJECT SOUFRIERE

MONTSERRAT

2 BEDROOM HOUSE STUD WALL JUNCTIONS & SOLE PLATE JOINTS

DRAWING No/CAD FILE: C/031

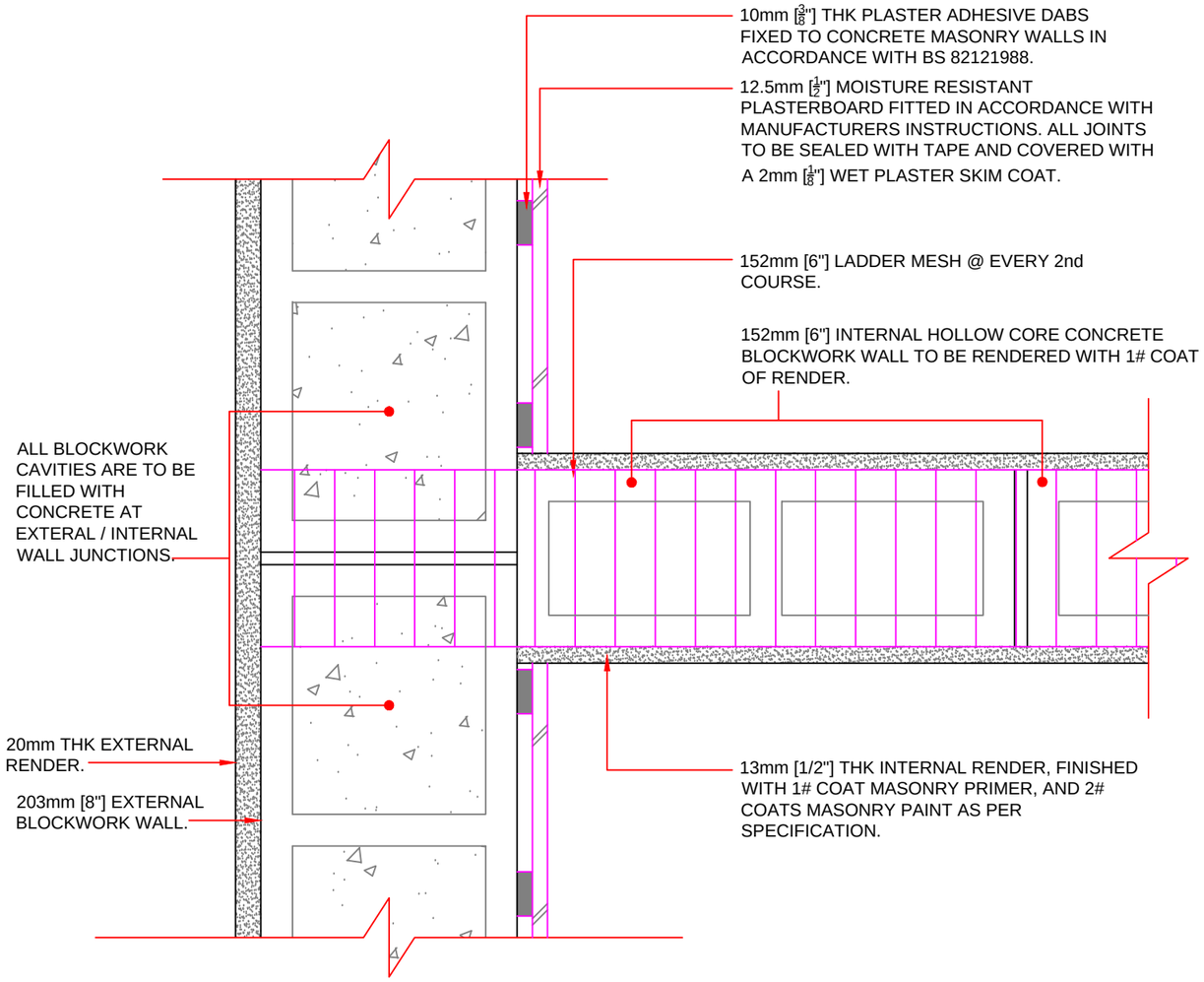
SCALE: 1:10

DATE: 04 SEP 15

PROJECT OFFICER DESIGN		APPROVED	
DTO		SIG	DATE
CLK WKS		SIG	DATE
DRAWN		SIG	DATE
AMMENDED		SIG	DATE

ORIGINAL SIGNED

A3



TYPICAL INTERNAL/EXTERNAL WALL CONNECTION PLAN

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/029	2 BEDROOM HOUSE TYPICAL STUD WALL
C/030	2 BEDROOM HOUSE TYPICAL STUD WALL OPENING
C/031	2 BEDROOM HOUSE STUD WALL JUNCTIONS AND SOLE PLATE JOINTS
C/033	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 2
C/034	2 BEDROOM HOUSE TYPICAL STUD WALL FIXING DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY
SERIAL	DESCRIPTION	AUTH / DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
INTERNAL/EXTERNAL
WALL CONNECTION
DETAIL 1

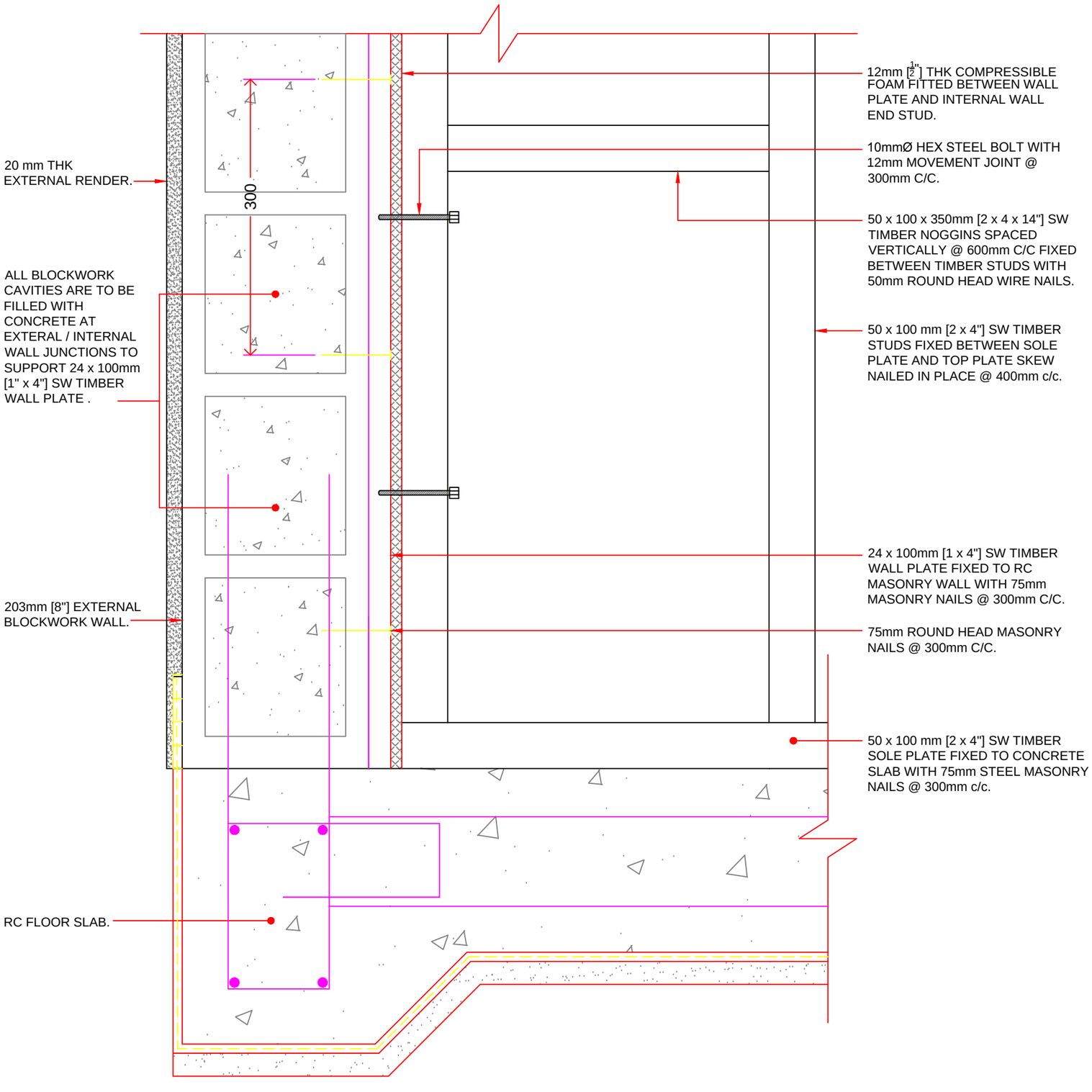
DRAWING No/CAD FILE
C/032

SCALE	DATE
1:5	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

A3



TYPICAL INTERNAL/EXTERNAL WALL CONNECTION

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/029	2 BEDROOM HOUSE TYPICAL STUD WALL
C/030	2 BEDROOM HOUSE TYPICAL STUD WALL OPENING
C/031	2 BEDROOM HOUSE STUD WALL JUNCTIONS AND SOLE PLATE JOINTS
C/032	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 1
C/034	2 BEDROOM HOUSE TYPICAL STUD WALL FIXING DETAIL

NOTES

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4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
INTERNAL/EXTERNAL
WALL CONNECTION
DETAIL 2

DRAWING No/CAD FILE

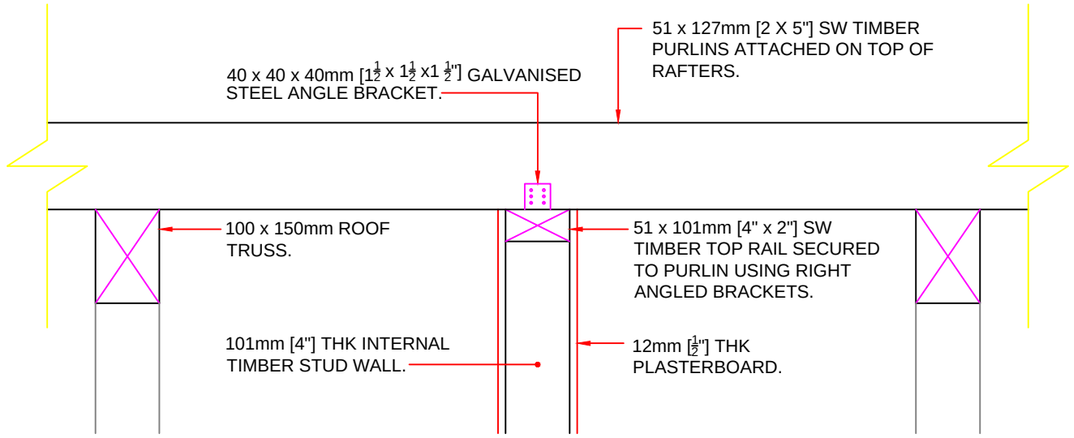
C/033

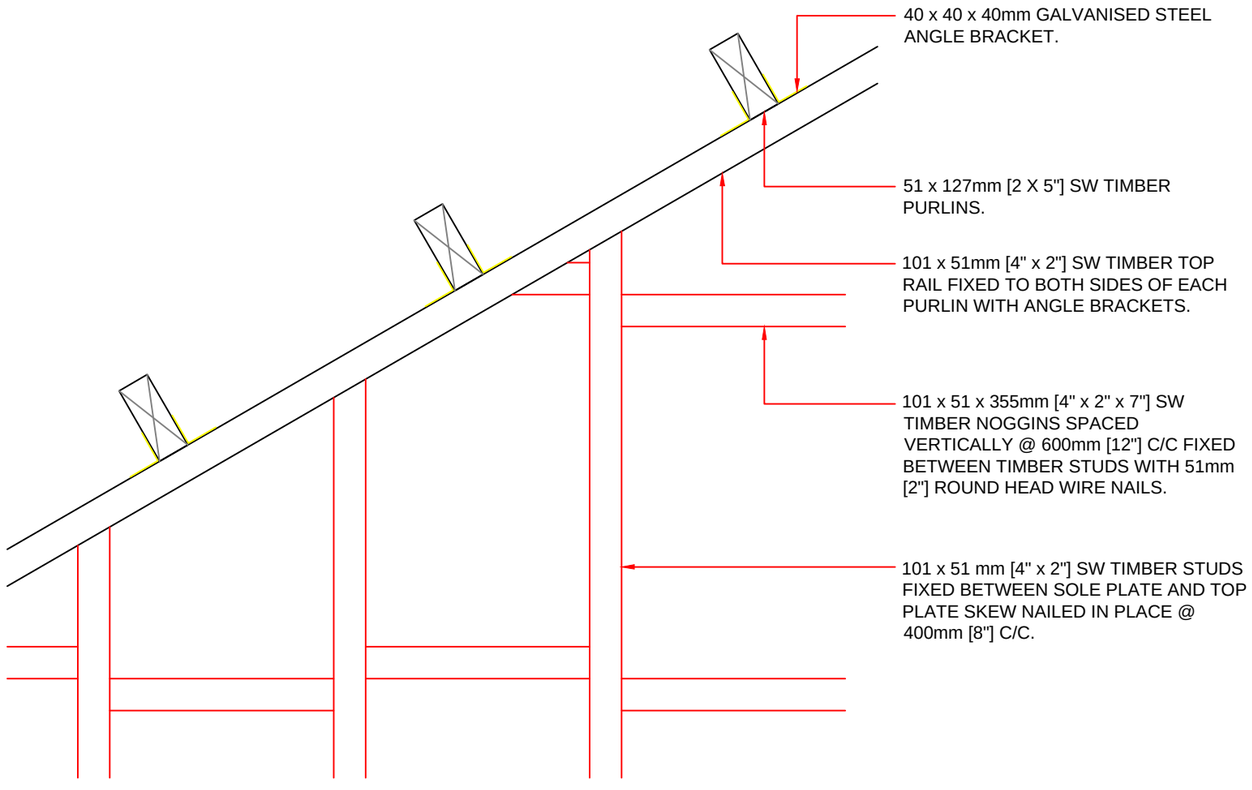
SCALE	DATE
1:5	04 SEP 15

PROJECT OFFICER DESIGN		APPROVED	
DTO	SIG		DATE
CLK WKS	SIG		DATE
DRAWN	SIG		DATE
AMMENDED	SIG		DATE

ORIGINAL SIGNED

A3





TYPICAL STUD WALL TO PURLIN FIXING DETAIL

ASSOCIATED DRAWINGS

No.	TITLE
C/002	2 BEDROOM HOUSE FLOOR PLAN
C/005	2 BEDROOM HOUSE CUT A - A
C/029	2 BEDROOM HOUSE TYPICAL STUD WALL
C/030	2 BEDROOM HOUSE TYPICAL STUD WALL OPENING
C/031	2 BEDROOM HOUSE STUD WALL JUNCTIONS AND SOLE PLATE JOINTS
C/032	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 1
C/033	2 BEDROOM HOUSE INTERNAL / EXTERNAL WALL CONNECTION DETAIL 2

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.
4. ALL SOFT WOOD TIMBER IS TO HAVE A STRUCTURAL GRADE OF C16.

A	DESCRIPTION	DD MON YY

SERIAL	DESCRIPTION	AUTH	DATE

AMENDMENTS

PROJECT
SOUFRIERE
MONTSERRAT

TYPICAL STUD WALL FIXING DETAIL

DRAWING No/CAD FILE
C/034

SCALE	DATE
1:10	04 SEP 15

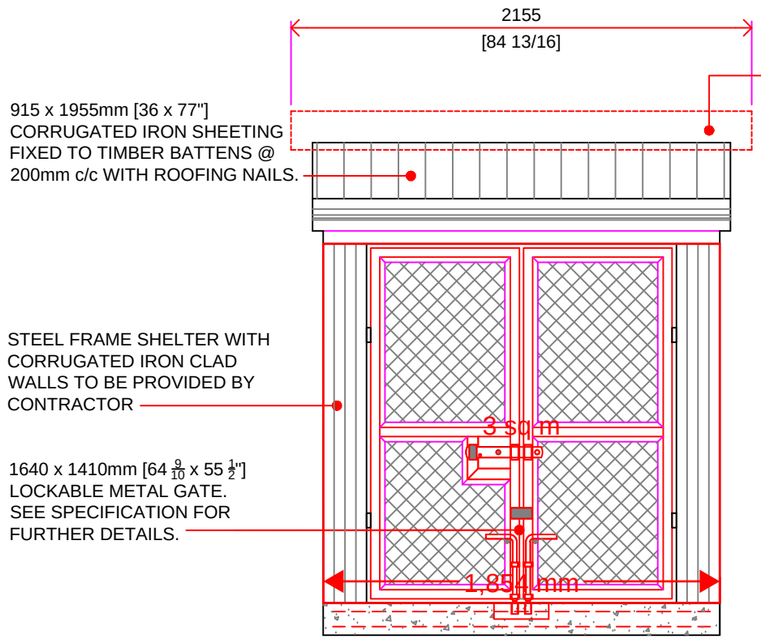
PROJECT OFFICER DESIGN		APPROVED	
DTO	SIG		DATE
CLK WKS	SIG		DATE
DRAWN	SIG		DATE
AMMENDED	SIG		DATE

ORIGINAL SIGNED

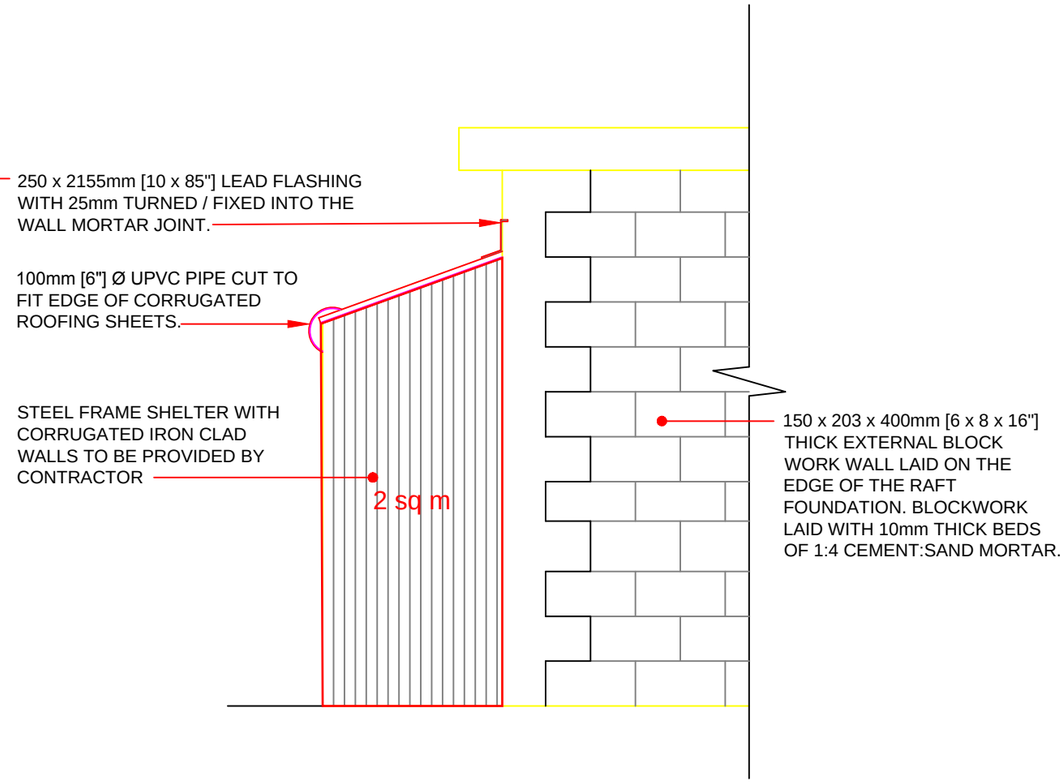
A3

INFORMATION NOTE:

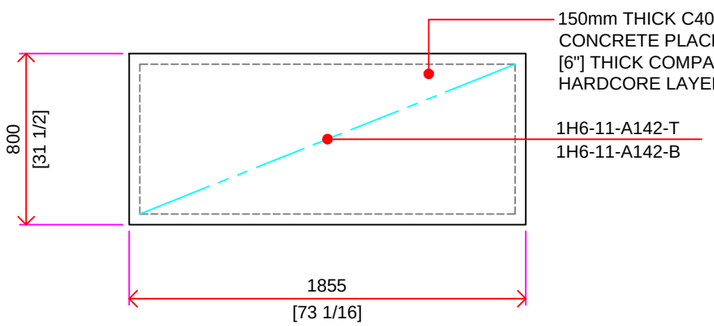
THE POSTION OF THE GAS STORAGE SHED IS NOT SPECIFIED IN THE DESIGN DUE TO THE STRUCTURES UNKNOWN LOCATION. TO BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS.



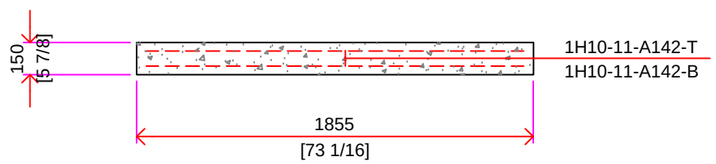
GAS SHED FRONT ELEVATION



GAS SHED SIDE ELEVATION



GAS SHED FLOOR SLAB



GAS SHED FLOOR SLAB

ASSOCIATED DRAWINGS

No.	TITLE
C/022	2 BEDROOM HOUSE BAR BENDING SCHEDULE

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.

AMENDMENTS

SERIAL	DESCRIPTION	AUTH	DATE
A	DESCRIPTION		DD MON YY

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
GAS STORAGE

DRAWING No/CAD FILE
C/035

SCALE	DATE
NTS	04 SEP 15

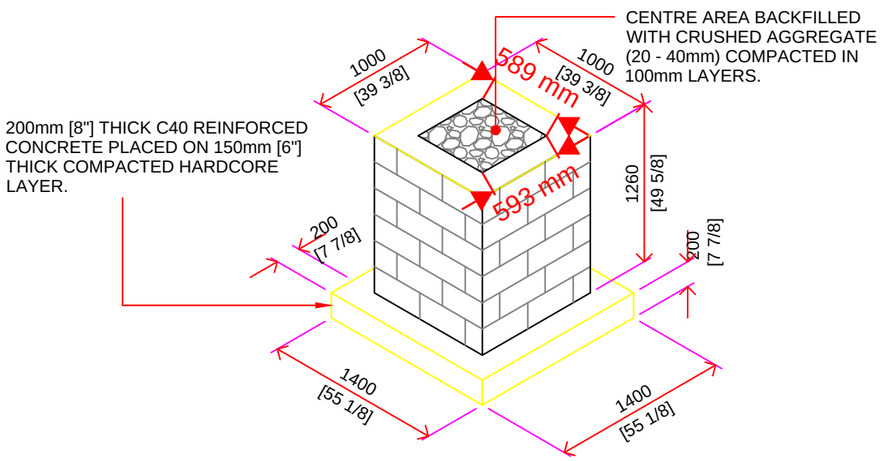
PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED

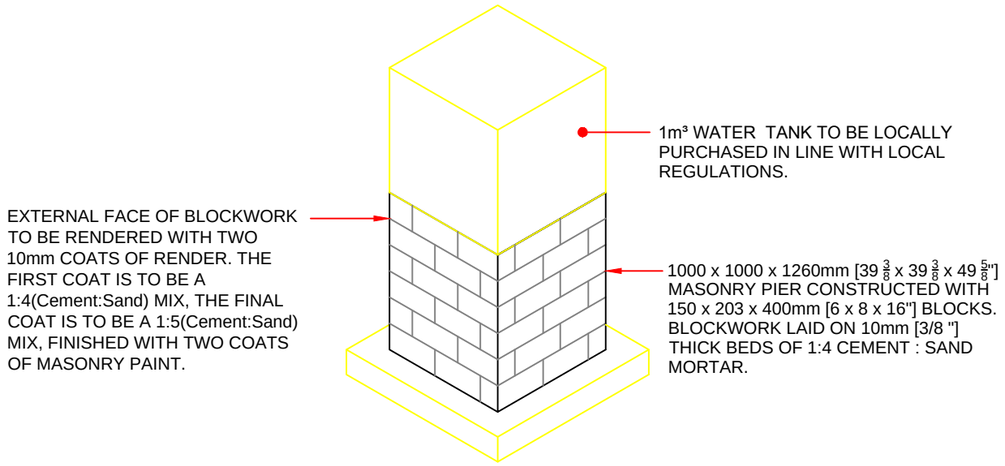
A3

INFORMATION NOTE:

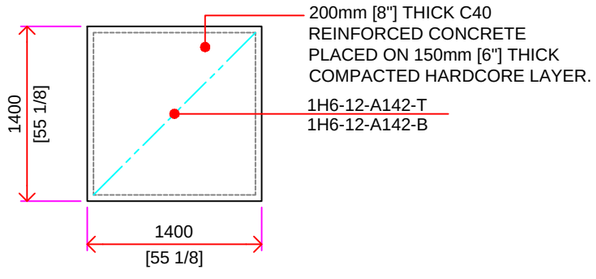
THE POSTION OF THE RAINWATER HARVEST TANK IS NOT SPECIFIED IN THE DESIGN DUE TO THE STRUCTURES UNKNOWN LOCATION. TO BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS.



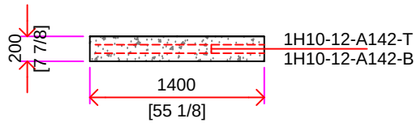
WATER TANK PLINTH STRUCTURE



WATER TANK ISOMETRIC



WATER TANK CONCRETE PLINTH



WATER TANK CONCRETE PLINTH

A3

ASSOCIATED DRAWINGS

No.	TITLE
C/022	2 BEDROOM HOUSE BAR BENDING SCHEDULE
M/004	2 BEDROOM HOUSE RAIN WATER HARVESTING DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND [INCHES].
2. MEASUREMENTS ARE NOT TO BE SCALED FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS.

AMENDMENTS

A	DESCRIPTION	DD MON YY	
SERIAL	DESCRIPTION	AUTH	DATE

PROJECT
SOUFRIERE
MONTSERRAT

2 BEDROOM HOUSE
RAIN WATER HARVEST
STORAGE TANK SUPPORT
PLINTH

DRAWING No/CAD FILE

C/036

SCALE 1:50

DATE 04 SEP 15

62 WKS GP RE

PROJECT OFFICER DESIGN		APPROVED
DTO	SIG	DATE
CLK WKS	SIG	DATE
DRAWN	SIG	DATE
AMMENDED	SIG	DATE

ORIGINAL SIGNED